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NAVY PERSONNEL RESEARCH AND DEVELOPMENT CENTER SAN DIEGO CALIFORNIA 92152

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MILITARY PRODUCTIVITY AND WORK MOTIVATION: CONFERENCE PROCEEDINGS

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This document consists of the presentations given at a conference on "Productivity and Work Motivation in the Navy and Other Military Services." The conference was held April 10-12, 1978. It was cosponsored by the Navy Personnel Research and Development Center and the Office of Civilian Personnel, and was conducted in cooperation with the Work in America Institute, Inc.

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FOREWORD

The conference described by these **Proceedings** was cosponsored by the Navy Personnel Research and Development Center (NAVPERSRANDCEN) and the Navy's Office of Civilian Personnel (OCP). The conference was conducted in cooperation with the Work in America Institute, Inc., an organization whose objective is to disseminate new ideas in the world of work—ideas that will contribute to both productivity and the quality of work life. Within NAVPERSRANDCEN, this conference was conducted in support of the Motivation and Productivity Assessment work unit (521.021.03.01).

Appreciation for overall guidance is expressed to the conference Steering Committee, comprised of RADM William R. Smedberg, USN; Mr. William Paz, Director of OCP; and Dr. James J. Regan, Technical Director of NAVPERSRANDCEN. Particular recognition is due to Dr. Robert Penn and Dr. Laurie Broedling of NAVPERSRANDCEN, Mr. Raymond Harrison of OCP, and Dr. Matthew Radom of the Work in America Institute, Inc., for their contributions to the conference arrangements.

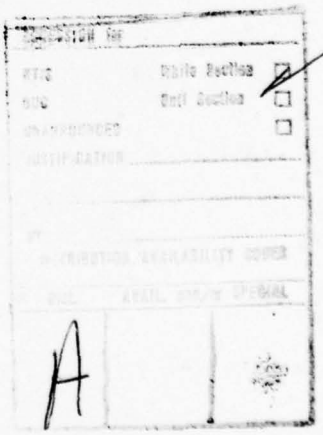
Appreciation is also expressed to the leaders of the workshop groups; these groups met each day after the formal presentations to discuss productivity issues in a particular functional area within the military sector. The enthusiasm and diligence of the following individuals in fulfilling this role were largely responsible for the successful results of these workshops:

- Dr. Karlene Roberts, School of Business, University of California, Berkeley
- CPT Robert Gregory, USAF, Air Force Directorate of Personnel Plans
- CDR Beth Coye, USN, Personnel Support Activity, NTC, San Diego
- Dr. H. Wallace Sinaiko, Smithsonian Institution
- Dr. Linda Doherty, NAVPERSRANDCEN
- CDR Dana French, USN, Bureau of Naval Personnel
- COL Vernon Sones, USA, National Defense University
- Dr. William Mobley, College of Business Administration, University of South Carolina
- Ms. Clara Erickson, Naval Weapons Center
- CPT Michael Stahl, USAF, Air Force Institute of Technology
- Mr. Ellis Berne, OCP
- Dr. Robert Hayles, Office of Naval Research
- Mr. Eugene Ramras, NAVPERSRANDCEN
- Mr. Samuel Connor, Roberts Associates
- Dr. Owen Jacobs, Army Research Institute
- Dr. John Hinrichs, Management Decisions Systems
- CDR Michael Midas, USN, Naval War College
- Mr. William Lytle, Polaroid Corporation
- Mr. Raymond Harrison, OCP
- Dr. Harry Seymour, NAVPERSRANDCEN

Dr. Delbert Nebeker of NAVPERSRANDCEN coordinated the workshops, and his efforts were instrumental in assisting in the achievement of their objectives. Finally, the significant contributions made by Mrs. Beatrice Smith of NAVPERSRANCEN to the editorial process are deeply appreciated.

In addition to these conference proceedings, a second document is being issued from the conference. This second document, entitled **Military Productivity and Work Motivation: Conference Recommendations,** presents the summarization of conclusions and recommendations based on ideas generated during the conference. The intent of this second document is to provide suggestions regarding those initiatives the Navy should consider undertaking with regard to productivity enhancement.

J. J. CLARKIN
Commanding Officer



SUMMARY

Problem

There is, at present, a strong concern about productivity in American society. In particular, the American taxpayer is applying increasing pressure for governmental responsiveness and efficiency, part of which is directed toward the military sector. Although the military sector has developed some productivity initiatives in response to this pressure, these initiatives have had two limiting characteristics. First, they have not been systemic or programmatic in nature; rather, they have been discrete efforts and narrow in scope. Second, they have generally focused on technological approaches to productivity enhancement, such as obtaining more sophisticated, efficient equipment or substituting machines for people. Relatively little attention has been paid to the effects of motivational variables on productivity enhancement.

Purpose and Impetus

The purpose of this conference was to investigate the productivity issues in the military sector that are primarily motivational in nature, including those applying to both uniformed and civilian members of the military services. The objectives were to identify problems and to generate ideas for programmatic efforts toward enhancing productivity and motivation in the military sector.

The impetus for this conference came from several sources:

1. A recognition of the salience of the topic area of productivity.

2. Awareness that technologies for enhancing productivity are already available and that information regarding these technologies needs to be disseminated.

3. The need to bring together people from diverse parts of the military system to share problems and experiences regarding productivity enhancement and to allow them to identify common ground on which to base a set of programmatic approaches.

4. The need to consider equally and jointly the productivity and motivation of both civil service and military personnel. This last point is particularly important since in the past, these two groups have seldom been conceived as part of a single system. Moreover, civilian productivity issues have often been ignored entirely.

Attendees

The majority of the conference attendees were from a wide diversity of Navy organizations. While these participants were primarily from the shore establishment, many of the uniformed participants had also had operational fleet experience. It was thus possible to consider productivity issues in both shore support and operational activities. Other attendees represented the Army, Air Force, Marine Corps, Department of Defense, General Accounting Office, Office of Mangement and Budget, Civil Service Commission, Smithsonian Institution, National Center for Productivity and Quality of Work Life, and the associations of civilian supervisors in government, as well as private sector organizations and academic institutions. In general, conference attendance consisted of people influential in productivity policy and practices within their respective organizations.

Organization of Conference

The conference focused on three major topics: Problem Identification, Approaches to Problem Solution, and Summarization and Projection of Future Needs. In addition to the formal presentations, the attendees were divided into small workshop groups, each of which dealt with productivity issues in a particular functional area within the military sector. A formal presentation was given by the spokesman of each workshop group on the last day, summarizing the group's conclusions.

Problem Identification

The first day of the conference was directed toward identifying problems that pertain to enhancing productivity and work motivation. Many of the problem areas raised by ADM Michaelis in his keynote address were echoed throughout the remainder of the conference, particularly the need (1) to investigate and utilize whatever flexibility exists for rewarding productivity, (2) to support existing programs that have shown high potential for productivity enhancement, such as fast payback capital investment, (3) to create more teamwork among military and civilian personnel through enhanced mutual knowledge and understanding, and (4) to increase participation by the workforce. Problems mentioned frequently by other speakers included the need (1) to create structures for productivity enhancement that can span the transitional management rotation of military personnel and political appointees, (2) where appropriate, to reaffirm the group's importance in achieving productivity, by measuring and rewarding group performance rather than focusing only on individual performance, (3) to develop managers' skills in productivity enhancement and personnel utilization, lessening the emphasis on their technical skills where necessary, (4) to find better ways to deal with arbitrarily imposed ceiling constraints and to tie ceiling and personnel rules more directly to budget, and (5) to modify the application of the position management system and personnel regulations such that a supervisor who enhances productivity and thus requires fewer personnel to do the job will not have his/her position downgraded by virtue of now supervising less people.

In essence, the most salient needs were those concerned with rewarding productivity enhancement at

both the rank-and-file employee level and the managerial level, and with removing obstacles that inhibit the productivity of employees who are intrinsically motivated to begin with, such as R&D professionals.

The most difficult questions concerned whether and how to measure productivity. It was agreed that some inputs to productivity are intangible and can never be measured. Moreover, some work functions, particularly professional ones, are difficult to quantify. On the other hand, if one does not measure productivity, it is difficult either to hold people accountable for it, or to reward people who increase it. It is also difficult to fight for one's budget in Congress or to justify operations to outside agencies such as OSD, GAO, or OMB.

While some of the problems raised were unique to particular functional areas, it is interesting to note that the majority were common across functional areas.

Approaches to Problem Resolution

The second day was devoted to generating approaches for solving the problems identified the first day. A wide variety of proposed actions was generated, ranging from the very specific to the very general. Moreover, some of the solutions entailed relationships with outside authorities (e.g., DoD, Congress, CSC, OMB, GAO), while others pertained to initiatives that could be undertaken within the individual services. The former were seen as more difficult to implement than the latter.

The approaches generated can be grouped into general categories, including means for doing the following:

1. Reducing the number and detail of reports required by higher authorities, and reducing the number of inspections of commands.

2. Changing the rules governing ceiling and grade control.

3. Providing incentives for productivity enhancement and disincentives for productivity loss.

4. Improving leadership and management practices with regard to productivity enhancement.

5. Distributing material and human resources in ways that are consonant with the goal of improving productivity.

6. Determining those areas where productivity measurement is appropriate, and, for those areas, develop measurement techniques and productivity standards.

7. Reducing military personnel turbulence.

8. Increasing the amount of organizational goal setting and developing improved goal setting methods.

9. Dealing with the impact of societal changes on the military system.

Summarization and Projection of Future Needs

On the third day, spokesmen for the various workshops made presentations describing the conclusions reached during the workshop sessions which followed the formal presentations. Finally, a summary address was given by Dr. Edward Lawler.

Companion Document

Since one of the conference objectives was to gather a list of problems and approaches to problem resolution, a second document entitled **Military Productivity and Work Motivation: Conference Recommendations,** is being issued from this conference. This document is a synthesis of the major problem areas and recommended action steps suggested by the conference attendees.

Conclusions and Recommendations

1. There are more options available for rewarding productivity enhancement than are generally known. These options should be identified, publicized, and utilized.

2. A need exists to change attitudes regarding innovation and experimentation in productivity enhancement. The current climate encourages commands to be conservative and to continue existing practices, regardless of their effect on productivity.

3. A productivity program should be of a continuing nature, rather than a succession of fads. The average military manager is used to weathering "this year's program," knowing full well it will fade away to be replaced with another. Further, it must include a variety of approaches, with assurances that these approaches will be consistent over time and across changes of command.

4. Despite the need for active, aggressive efforts to enhance productivity, it should be recognized that programmatic productivity enhancement initiatives cannot be implemented and evaluated in less than 10 years. Most initiatives taken by large companies in the private sector have taken at least this long to become successful.

5. While there are many common problems, the actual solutions to these problems must be tailored to fit individual situations. In the past, a common error has been to find a technique that enhanced productivity in one organization or unit and then uncritically mandate its use elsewhere without following up to make sure it is effective.

6. A need exists to create one or more coordination points for productivity enhancement efforts in the military. However, such centralization should not result in removing reponsibility or authority for productivity enhancement from the line manager, where it necessarily rests.

7. Changes in attitude and action regarding productivity enhancement must begin with members of top management, since they are in the best position to reward productivity, to set an example for others, and to make organization policies conducive to productivity enhancement.

This conference was the first military conference to be held on the problem of productivity. The enthusiasm of the attendees reinforced the original perception of the need for such a forum to share information and identify common problems. The conference succeeded in its intended purpose of producing a comprehensive list of problems and approaches to productivity enhancement. These can serve as an agenda for policy makers who are interested in productivity enhancement in the military sector. The major problem, which still waits to be addressed, is how these initiatives can be implemented institutionally within the Navy and other military services.

CONTENTS

PART I
PROBLEM IDENTIFICATION

KEYNOTE ADDRESS

ADM Frederick Michaelis, USN, Chief of Naval Material

Introduction: CAPT James Clarkin, Commanding Officer, Navy Personnel Research and Development Center.

CAPT Clarkin: Admiral Michaelis, ladies and gentlemen. It is a singular honor for me to introduce our keynote speaker, because of my immense admiration for the contributions he has made to national security during a career spanning almost 40 years. Regardless of the recent announcement of Admiral Michaelis' retirement, it is incongruous to speak of him in those terms. His participation in the affairs of the Navy has been central and aggressive, from the opening days of World War II through the present negotiations involving $2.7 billion in shipbuilding claims.

The human dimensions of his Naval Material Command are intimidating. There are 210,000 civilians in NAVMAT, of whom 65,000 are in the shipyards; 20,000 in research and development centers; 25,000 in the Naval Air Rework Facilities; and many more in ordnance, supply, and other types of maintenance; in fact, NAVMAT includes the highest number of industrial workers of any of the Armed Services, with twice the number of projects and twice the number of project managers.

The management of NAVMAT has been burdened by the severest of personnel reductions. Since 1968/69, there has been a personnel reduction of 27 percent, with the Naval Air Systems Command alone sustaining a reduction of 50 percent. All the while the dollar amounts and the number of projects have been increasing, along with the foreign military sales. Even given these conditions, ADM Michaelis has advanced the effectiveness of his command by his emphasis on an openness to new management techniques and procedures.

His frustrations, I am sure, have been many, and I am equally sure most of them have been related to the subject of this conference. Considering the large numbers of people who comprise NAVMAT, and the variety of their areas of employment, it is certain that a large part of that population does not easily lend itself to measures of productivity. In fact, even attempting to define productivity in many of these areas is a nebulous process at best. It is our hope that the efforts of this group will assist in lessening his frustration.

Ladies and gentlemen, Admiral Michaelis.

ADM Michaelis: I am glad to be the keynote speaker at this conference because it gives me an opportunity to share with you the many, many problems that associate themselves with productivity, both in terms of definition and in measurement. I certainly think that one of your biggest jobs is the business of gaining an understanding of how we measure—and measure realistically—that nebulous term of productivity.

Although we may be looking for very specific goals in this conference, we already have some general goals with regard to human resources that are very much akin to those that I am sure eventually we will come around to in productivity. In any event, since we are going to be dealing with human beings in the next few days, we must keep track of that all-important message concerning human relations that I've been seeing on a poster in many places around the Department of Defense. It goes like this:

> Our nation was founded on the principle that the individual has infinite dignity in work. The Department of Defense, which exists to keep the nation secure and at peace, must always be guided by this principle. In all that we do, we must show respect for the serviceman, like the civilian, recognizing their individual needs, aspirations, and capability. The defense of the nation requires a well trained force, military and civilian, regular and reserve. To provide such a force, we must increase the attractiveness of a career in defense so that the serviceman, like the civilian employee, will feel the highest pride in himself and his work and the uniform as well as the military profession.

Our Navy acquisition job, as Captain Clarkin mentioned, has been expanding over the past several years while our people resources have been diminishing. I am not going to go through the size of the civilian force, except to round out those figures with a couple of statistics intended to bring home the fact that the Naval Material Command is really a civilian organization. For every 1,000 civilians in Washington Headquarters, I have 82 officers. For every 1,000 civilians in the R&D centers and laboratories, we have about 10 officers. In the shipyards—and probably the Naval Air Rework Facilities as well—there are about 9 officers for every 1,000 civilians. If we keep those figures in mind, it is very clear why I have such a high interest in the productivity of civilian personnel in the Navy.

We have a variety of programs that were designed to measure and improve productivity, and we are making some major capital investments through such programs as manufacturing technology and fast payback. In our design of ships, we try to provide a

better quality of life for our servicemen in every way we possibly can. At the same time, we are faced with the dilemma that, in the fixed volume of a ship, we must continually improve the military characteristics and capabilities of that vessel. We must be able to perform our job more effectively, to find ways to carry fewer people aboard our ships and at less expense to the taxpayer. We are making some investments in education programs, both inside and outside the Navy, to increase the quality of life and to expand the opportunities for our people. Because the Navy has the sea as its medium, and because the military portion of the Navy goes to sea, these programs have been focused primarily on the military side of the Navy.

I am very happy that we are addressing the question of productivity because it brings us to the subject of our civilian people in the Navy, and we have not had any well organized programs in this area. There have been a few *ad hoc* efforts, some of which have had a reasonably high payoff. But we have been just feeling our way. Therefore, I believe that we can have a big impact on the Navy's mission if, through this forum gathered here, we can get at some root methods for understanding, defining, measuring, and implementing some of the means for improving productivity. After all, we concern ourselves today with a group of people that represent about three-eighths of the Navy. That is worth a great deal of effort in trying to make some improvements.

I hope that you will consider not only increased productivity but, also, how to measure the effectiveness of productivity programs. I recently reviewed the so-called productivity performance curves for the nation—the ones for the Federal Government less DoD and the Postal Service, private sector less farming, the military services, and so on. I believe that the program responsible for developing these data is well-intended but possibly lacks realism. I would call it a sort of paper program. The curves I reviewed covered the period from 1972 to 1976. The criteria were not all self-explanatory, and, without an explanation, the results can be misleading. My staff found that, in some cases, the output units given for the military services were really not comparable across services as to the function performed. As a result, the curves seem to make the other services' productivity rise, while the Navy's remained steady. I personally would like to know more about this measurement system. At the end of this symposium, I hope you will be able to tell me what is, and what is not, meaningful in our present productivity measuring system. In any event, if we are going to be serious about productivity, we need to seek high payoff areas of productivity enhancement. We should not put all of our eggs in the paper program reporting system.

There are two organizational changes now underway in the Navy that auger very well for productivity. One is placing the responsibility for the productivity program under the Assistant Secretary of the Navy for Manpower, Reserve Affairs, and Logistics. This organizational change provides appropriate and balanced emphasis under one heading—people and the industrial capitalization to improve their productivity. The second change will move the civilian manpower and personnel functions from the Navy's Secretariat to the Chief of Naval Operations (OP-01). I consider this a great opportunity to bring civilian and military personnel within the same or parallel programs for improved productivity—a real step forward in my view.

Without meaningful personnel-oriented programs, productivity efforts will not succeed. At the same time, meaningful manpower support efforts can be catalyzed by productivity investment. Capital investment and personnel management are very comfortable helpmates in the world of productivity. One works hand-in-glove with the other. There are a few ongoing programs that impact on the man-machine interface that are directed at harmonizing their capabilities. One of these is manufacturing technology—an effort to translate the very latest technical knowhow into more sophisticated machines and production techniques. The program focuses on today's problems in procurement as well as on operational readiness. We find it is necessary to invest seed money in high leverage situations: the industrial sector provides first-of-a-kind machine tooling and/or procedures that we may need to overcome lead time and cost problems. An example is a ship's frame bender, which is a prototype computer-controlled machine that automatically bends 25-inch steel beams to the precise shape needed for ships' frames. Each bend will be made for about one-twentieth the cost of the old method. Productivity goes up, and the people who work in this area are encouraged by seeing this forward move.

A second program focuses on near-term capital investment in modern equipment items. This enables a local commander to provide needed and efficient equipment to his work force within a time frame that is useful, both to his men and to the immediate job. Much of the off-the-shelf equipment now available has been brought into being by the seed money that went into manufacturing technology development. Fast payback capital investment entails providing off-the-shelf availability of efficient equipment by providing the money to pay for the equipment and identifying the areas where this equipment is going to have its highest payoff. The program provides the in-house Navy, principally the industrial activities, the opportunity to exploit economic advantages of current technologies during the time interval of maximum return. The timeliness of this investment takes on a pronounced significance because the windows of opportunity are frequently very small, maybe 3 to 8 years in the manufacturing arena, and they are narrowing. Consequently, in order to realize full economic leverage, the onus is on all of us as managers to make timely investments and to maximize the impact of each of these capitalization efforts.

That is slightly off the main line of what this group has been brought together to consider, but I think it is

important to take advantage of this double-barreled effect of in-house investment, since the motivation and the enthusiasm of employees is partially dependent upon the extent to which they work with up-to-date equipment. That is the catalytic effect I was speaking of earlier: the motivation and participation by our people are catalyzed by an assurance that we are looking at all elements of the productivity situation to help them along, including providing them with the equipment they need.

When I first received the invitation to participate in this conference, the efforts being made by General Motors to humanize life on the assembly lines were mentioned to me. This brought back to my mind the efforts of a young Lieutenant Commander who, working out of the Philadelphia Naval Shipyard while his ship was in overhaul, made some great strides in what I consider as productivity of a very special nature. This young man is with us today—now Commander Michael Midas, former commanding officer of USS VREELAND. I am going to talk a little about his approach to productivity while he was in the shipyard with VREELAND. First, he brought the ship's force together to discuss the personal worth and dignity of both the ship's force and the shipyard workers who would be working together for the first time. He advised them that all people like to be told that they are doing a good job and that their attitude is most important. He pointed out to the ship's force that they must be responsible and set an example for the ship's cleanliness and safety conditions. By example, he extended a "we care" attitude to the civilian shipyard workers. Upon his ship's entering the yard, Commander Midas continued to build on that program. He told the shipyard foremen that the ship's objective was to complete the overhaul early but yet with a maximum condition of readiness. He asked the civilian workers to share the pride that the ship's force had in their ship. He made sure that the foremen understood that VREELAND played a very important part in keeping the sea lanes open in support of the national objectives of this country and that, if the ship didn't return in time to meet its deployment, it could affect the individual deployment schedules of six other ships.

In summary, Commander Midas placed maximum emphasis on the role of shipyard civilians in his ship's overhaul. As a result, there were monetary savings of about $870,000 and VREELAND was back at sea 2 weeks ahead of schedule.

I will point out another area where I hope that we are making a little headway in promoting the people component of our productivity efforts. The Naval Material Command has what we call Area Logistic Boards, one in each of the Navy's major homeport areas. These boards are looking for ways to increase productivity. For example, the Jacksonville Area Logistics Board arranged a productivity improvement seminar recently. Nineteen people attended, representing all the activities associated with the logistic support of our ships and aircraft. They were trying to find ways to improve both productivity and quality of work life for the Navy civilian employees in the Jacksonville area. Various techniques came out of that meeting—techniques that were to be tested over a 4-month period, with evaluation scheduled for September of this year. Techniques under study include the self-supervision approach used by the Rushton Mining Company and the Japanese-developed quality control circle. More important than anything else, the attendees developed a feeling that this symposium was the first time Navy and civilian employees in the Jacksonville area had come together officially to discuss a most important subject; namely, their work.

Another aspect of productivity improvement is the direct encouragement of increased employee productivity through management's use of motivational studies. This is an area in which the Navy can do more. For example, we need to understand better the usefulness and implementation of incentives. Generally, private industry is becoming much more active in this field than in the past. It is introducing a variety of work enhancement incentive and reward programs designed to increase productivity through increased output and reduced costs. There is one innovative and apparently successful incentive program in operation in the Navy—the Performance Contingent Reward System (PCRS). This system was developed by the Navy Personnel Research and Development Center, and was first implemented in January 1977 in the Data Processing Department at the Long Beach Naval Shipyard. The overall purpose of the program was to improve productivity for people working as keypunch operators in this department.

During initial installation, a monetary award was given to all eligible employees who exceeded the established objective performance standards. These standards were established in five procedural categories and were expressed in terms of key strokes per hour. They were based on information obtained from the department director, actual reports of the past, and existing standards in similar federal activities. The vehicle for implementing the monetary reward program was the Superior Achievement Award, which is one of three categories of rewards in the government's special achievement program. The size of the award was set at about 11 percent of the amount saved the government by the individual's production above the established standard. The payoff scale has the advantage of being directly correlated with performance. The PCRS was evaluated on 17 civil service data transcribers over a 13-week trial period. When the results were compared with a base period of equivalent length, it was found that overall net costs—production minus the program setup cost—were reduced significantly during the trial period, with no loss in productivity.

One important question that attends this PCRS program is its potential for Navy-wide savings. A survey conducted by NPRDC located about 725 data transcribers in shipyards, supply centers, ordnance depots, and other activities within the NAVMAT community. I don't like to generalize, but if we did a straight bit of arithmetic, estimated annual cost savings using this program would be between $0.9 million and

$2.8 million. Over a 5-year period, the savings could amount to between $6 million and $15 million.

Outside the Navy, some other successful efforts have been conducted. A January 1978 issue of *Business Week* reported some very valuable industrial applications in the area of productivity enhancement. Some 10 years ago, Edward Feeney pioneered the systematic use of positive reinforcement; it cut costs by about $2 million a year at the Emery Air Freight Corporation. Very few people in the mainstream of management paid much attention. They concentrated instead on other newly evolved techniques that seemed to be easier to implement and freer of the dark psychological overtones. And although positive reinforcement is still in the evolutionary stage, it is presently beginning to attract some attention. It involves a technique commonly called "behavior modification," and is becoming recognized as a valuable tool to help managers combat slumping productivity. One corporation using this technique reported a conservative estimate of cost savings in 1977 alone of $3.5 million and that does not include employee morale, which is difficult to quantify. Other major companies have adopted programs along this line.

Recently, the *Wall Street Journal* reported that Volkswagen hopes to promote good labor relations at its new Rabbit plant, in spite of the predictions that the German management style wouldn't set well with American workers. VW is apparently not resisting the United Auto Workers effort to become the employees' bargaining agent. Moreover, they are giving 56 floor supervisor mechanics some unusual training in human relations. I think it is significant that a company of this size is sufficiently sensitive to how workers' problems affect their work that they're training sizeable numbers of people in how to deal with these problems.

I also want to say just a few words on what I would like to see come out of this conference. I have already made the point that the Naval Material Command faces a future of budgetary constraint and decreasing resources, at a time when our country is having to face a constantly increasing threat to its security. We must, therefore, find ways to do things better with fewer people—and not just aboard ship, but in all of the fleet support activities represented by the Shore Establishment. So my challenge to you is to identify initiatives and recommend plans for executing such initiatives. This will improve the quality of life of our civilian resources and thereby improve productivity.

I urge you to look for participative approaches. Experience tells me that very often changes in the quality of life get mixed up with handouts that are not earned and that do not require increased responsibility on the part of the recipients. My challenge to you is to draw some lessons learned from all of your resources, and determine how the Navy can improve the quality of life, induce teamwork, increase motivation, and therefore assure higher productivity on a participative basis.

Dr. Penn: If you have any questions the Admiral will take a few minutes to respond to them.

Question: I am much interested in the Performance Contingent Reward System, especially in the legality of it. Could you tell me about the problems you have had, and whether you expect to get this system firmly implemented?

ADM Michaelis: It has only been implemented on a trial basis so far, and we are going to have to move very cautiously in implementing it further and deeper into the system. Dr. Penn, could I call on you to tell us what kind of problems we have at the present time with PCRS?

Dr. Penn: At the present time, we don't have too many problems other than those with implementing the system in the other shipyards. The individual who has been running that project is here with us, Dr. Del Nebeker; perhaps he might just take a minute to describe its status.

Dr. Nebeker: We have had nothing but support from the Civil Service Commission in our efforts so far. The Federal Personnel Manual Chapter (451), which outlines the use of incentive awards, clearly specifies that awards can be given for productivity when it has tangible benefits to the government. We are currently using this as the basis for determining incentive awards. The Incentive Award Office of the Civil Service Commission has indicated that this is within the legal limits. With this assurance we have had, we are moving ahead to implement the program in the data processing department in all the Navy Shipyards. Later on, we will be looking to other places in the shipyards where similar programs might be applied. We are also currently working with a DoD activity that has obtained tentative approval to go ahead and apply this program to a different kind of task which involves clerical work. So, at the present time, we are moving ahead in the shipyards and are attempting to expand to other tasks and activities.

CAPT Clarkin: It should be emphasized that this system is not a panacea. Thus far, it has dealt with highly routinized tasks. Also, in some instances, it may be resisted by the unions in that it may be viewed as an attempt to get a pound of flesh.

ADM Michaelis: I would like to add that I am having our legal people look at the use of the incentive award system and hope to come up with some flexibilities, so that it could truly be used to reward productivity as opposed to our current use. We are taking a look at the whole concept of incentive awards to make them a lot more practical and a lot more meaningful than they are now.

RADM Hoffman: I have to say that I run the shipyards, and if I am doing something illegal in implementing the PCRS, I fall on my sword, and Dr. Nebeker is going to be standing in front of me . . . . The system is working great.

Question: Is there longitudinal research that supports the long-term effects of this PCRS incentive system?

Dr. Penn: Yes. The PCRS has been in effect for over a year at one site, and the results are holding up as anticipated, if not even better.

CHANGING ATTITUDES TOWARD WORK

Mr. Jerome Rosow, President
Work in America Institute, Inc.

First I am going to talk briefly about the challenge to authority in our society and set that in perspective. Then I would like to turn to what I call changing attitudes toward work under three headings. Those three headings are (1) what I call the post-religious society; that is, the decreasing dedication of Americans to work, and their increasing interest in leisure; (2) the growing demand for participation and decision making; and (3) the fact that our society is changing faster than the workplace. Finally, I would like to draw some quick observations about special factors affecting the military services.

As we well know, during the 1960's, the United States and other Western societies experienced a so-called youth counterculture movement. Many of the potentially radical attitudes of youth were greatly intensified by the concern over the environment and the revulsion, particularly in universities, against the Viet Nam War. Now this revolution in social values, despite the current quiet on the campus and the fact that students are more serious today than ever before, has continued in our value systems. The ideas originally advanced by a comparatively small number of students are now in fact embraced by millions of young people in the mainstream of America. As a by-product of these fundamental changes, American young people have changed their attitudes toward authority. In 1969, almost 70 percent of young people accepted authority with few, if any, reservations. Today, more than three out of four young people say that they do not have to take orders from their superiors at work if they disagree with those orders. Thus, the permissive society in the West has fostered a great change in authority roles.

We have seen this change in the schools, where the young people openly disagree with and challenge their teachers. I find it startling to read in the *New York Times* and *Time* magazine that, in 1976, approximately 65,000 teachers were physically attacked in their classrooms. As a matter of fact, last week in the *Wall Street Journal,* in the "Labor Letter," there was a brief item reporting that a poll of 5,000 teachers in the city of Chicago indicated that 56 percent said that they suffered physical disabilities on the job because of pressure, and 26 percent reported mental ailments. Both of these manifestations were cited as attributable to violence in the classroom. I compare that to when I went to high school—I would come home and tell my father that the teacher had done something wrong and his response would be one of absolute disbelief. He would demand that I go back and do whatever the teacher wanted, and tell me that I was very lucky to have the opportunity to go to school. He would never enter the classroom on my behalf and talk to the teacher because the teacher was held in such very high regard.

If we look at the family, where the traditional authority figures have adopted much more open relationships with their own children in order to achieve stability and consent, we realize that this change is very close to our daily lives. These more permissive values have carried over into marriage; the husband and wife relationship is undergoing a major transformation, particularly since more than 75 percent of all wives, with or without children, are working in the labor force today.

So it is to be expected that these changes in authority relationships would spread to the work place. However, although younger and more inexperienced workers resent authoritarianism, they are not opposed to the proper exercise of authority. This distinction is what is so important. People in our society respect authority when it is properly exercised with restraint and rationality, but they reject it when it is abusive or arbitrary. This poses a new and important challenge for all large bureaucratic organizations to rationalize their work procedures and to learn to manage with consent.

Returning from this radical shift in attitudes toward authority in a very short period of time in our history, let us look at just a few points that I have identified in changing attitudes toward work. First, I would like to talk about the post-religious society and point out that, if we look back historically at the work ethic, we know that it had its real origins in Western civilization. However, as much as we respect the Greeks for all the things that they did in terms of art and science, the early Greeks in fact regarded work as a curse. They clearly suggested in their definition of it that it was drudgery, heavy-heartedness, an exhausting type of activity. When the Hebrews came along, they looked at work as an atonement for the original sin. The early Christians followed this concept and said that work was considered an act of expiation. They also looked to work as a means of spreading charity and sharing with the needy, which was, in fact, the first rationalization for the accumulation of worldly goods or private property.

Protestantism injected more meanings into work, especially the work ethic. In looking at Martin Luther's work, we see that he conceived work as the way to serve God—in fact, as the best way to serve God. Luther's influence prevails in Switzerland to this day. Whenever the Swiss have a problem, they submit it to a public referendum. The government does not just take an action the way it does in the United States; rather, it asks all the people whether they think it is a good idea or not. Recently, an issue came up in Switzerland as to whether or not they should go from a 45-hour to a 40-hour week. Rather than passing a law on this issue, a public referendum was held, and the Swiss people rejected the 40-hour week, preferring to remain on the 45-hour

week. So the work ethic in Switzerland is very strong today and, in many ways, their view is a reflection of the insularity of Switzerland in comparison to the rest of Western Europe.

John Calvin added to this Lutheran idea by considering the dislike of work as the road to damnation, because work in effect is God's work, and men of all stations must work unceasingly. This really fortified the Industrial Revolution by underpinning work with explicit religious and moral connotations. Today people are unprepared to tolerate adverse conditions, hard and unrewarding work and self-sacrifice for rewards in the afterlife. This is not an antireligion view, but, rather, it is supported by the increased knowledge of the vastness of the universe and the growing skepticism about the immortality of man. All we have to do is see some of the current movies, such as Close Encounters and Star Wars, to realize that people are confused and puzzled about the nature of the universe. So we are in a situation today where the concept of deferred gratification is much less acceptable. We have the development of what we refer to as hedonism. All we have to do is talk about the "now" generation, and that term is explicit enough to indicate what we mean. The young and the middle-aged alike no longer accept work as a process of atonement or even consider it as a self-contained goal in life.

This brings me to the second development, which I call less dedication to work. In 1973, 8 out of 10 American students believed that "it is very important to do any job well," and that's holding. Yankelovich has added some surveys of youth, which have been conducted over the last 6 to 7 years, that have revealed consistently that the work ethic is alive and strong, despite the revolution in social values.

However, youth's traditional appraisal of the rewards for hard work has gone through remarkable changes. In 1967, 69 percent answered "Yes" to this question: "Does hard work always pay off?" Today, two-thirds of the youth say, "No." Now this is a view of the world of work that is probably a reflection of the attitudes at home and may also be a more realistic insight that many jobs are routine, dull, and boring and do not challenge the talents of the average worker. One phenomenon that we see as a representation of change is that leaves of absence are growing more common as workers seek a change from the work cycle. Whereas paid sabbaticals are only granted by about 16 of 434 companies surveyed by the Hay Associates in 1977, 9 out of 10 of these companies said that they offer unpaid leaves of absence. Organizations are, in effect, responding to employees' demands for a career pause without a break in tenure.

Let's take a look at the leisure society. On the one hand, we talk a lot about the leisure society; on the other hand, we have had a fairly stable workweek in America. In 1938, Congress passed a law, under the Roosevelt administration, establishing the 40-hour week. In fact, in 1938, we went to a 42-hour week, and in 1940, the 40-hour week became legal. That is almost 40 years ago, and the 40-hour week is still the legal workweek in the United States today. In big urban centers like New York, we find people on the 37½-hour week—in some special cases on the 35-hour week, but these are only accommodations to the tremendous amount of time spent in commuting. We really have had a fairly static workweek over a long period of time.

Whereas the workweek has remained very stable, the attraction for leisure pursuits has not. When work and leisure are compared with one another as sources of satisfaction, we find that only one in five people in the United States feel that work is more meaningful than leisure. Sixty percent say that, while they enjoy their work, it is not their major source of satisfaction; another 19 percent are so exhausted by work demands that they can not even conceive of it as a minor source of satisfaction. A recent unpublished manuscript in Sweden provides some very striking findings. In 1955, the Swedes conducted a study of men aged 18 to 55, and they asked them this question: "What gives your life the most meaning? Your family? Your work? Or your leisure?" At that time, only 13 percent said leisure, 33 percent said work, and 45 percent said that the family gave life the most meaning. In 1977—last year—the Swedes conducted a similar survey, addressing this question to a new cross-section of Swedish men. They found that the percentage citing (1) work as the main source of meaning in life declined from 33 to 17 percent; (2) family life declined slightly from 45 to 41 percent; and (3) leisure doubled from 13 to 27 percent.

We know that Sweden is currently experiencing some of the highest absenteeism rates in the Western world—15 to 30 percent. Certainly this is a manifestation of a negative attitude toward work. The Swedes themselves are desperately concerned about this. Of course, it has something to do also with their social policy, and the fact that, if you are absent from work, the Social Security System provides you with 95 percent of your take-home pay. If you are going to set up a system that destroys the incentive to work, by going overboard in the Social Security System, you are bound to have a behavorial response.

I do not think this dramatic shift in attitudes toward leisure vs. work is easy to explain, nor should we conclude that this new breed of workers is less motivated than people in my generation. What it does reflect is more cynicism, higher expectations, and, more importantly, a questioning attitude toward work and its values. As a result, it is much more difficult for managers to develop employee commitment to the job and to the organization. Many managers and executives themselves are seeking a new balance between work and life. Fewer are going home with their attache cases at night to continue the work that they did not finish at their desk.

The third change in attitude toward work that I would like to touch on is what is called participation. I am only going to talk about participation in the process of

decision making, not in the management of the enterprise itself. Over the past 10 years, we have witnessed a remarkable increase in employee expectation for participation in decisions, particularly those affecting their own jobs. In 1977, 54 percent of the public said that they had the right to participate in making decisions affecting their job. The percentage was even higher among workers under 24: 62 percent expressed this view. Decision making, in my view, is one of the more subtle and more difficult issues to deal with in the quality of working life. Workers want and believe that they deserve more participation, and this desire is specific to the immediate arena of the job. It does not reach up to the executive or the corporate-wide decisions that extend beyond the individual employees' limited vision of the organization. Nevertheless, the art of sharing decision making is resisted by most managers.

The issue will be resolved slowly, if at all, and the reason is that authority and responsibility in our society tend to rise to the top rather than drift downwards. Managers cherish authority, but they worry about having too much responsibility. Since they consider that they have too much responsibility and not enough authority, their preoccupation with responsibility limits their willingness or impulses to delegate or share authority for decision making. In the corporate boards and directors in the United States today, we have seen a radical change, almost in the legal definition of the corporation, where individual responsibility for failure and mistakes has resulted in direct attacks on the corporate officers. To use an analogy, the whole malpractice concept affecting the medical profession is beginning to creep into the corporate board room. The boards of directors are no longer immune from decisions that can be traced directly to their own actions. That kind of high level of responsibility is not the most conducive to increasing delegations of authority, either by massive decentralization of the organization as a whole or by direct delegation down to the layers within the organization. Therefore, we have a real dilemma. Despite the increased pressure from employees who want to participate in decision making at the job level, the modern organization has been structured in the opposite direction. We know also that participation is an art form that requires a genuine set of motives and a basic belief in the ultimate value of the individual. In other words, management needs to place a higher value on the individual, to see that each person represents a resource of ideas, and to open that resource, not giving away any authority, but, rather, sharing some of the responsibility.

The current demands for participation in our society affect all aspects of our institutional life. We see it in the schools, universities, welfare agencies, prisons, hospitals, offices, factories, military forces, and church. If these demands succeed, they will bring a great number and a great variety of changes to our institutions. Also, we cannot ignore the threat of unionism in the Armed Forces as an issue that is shaking the establishment.

Finally, when we look at our society in the United States and consider some of the rapid and penetrating changes that have taken place in the last decade, we realize that we have gone through probably one of the most accelerated changes ever in our mores, folkways and law, in one brief period of time. In effect, we have undergone a revolution in social values. We have seen unbelievable changes in attitudes toward legal abortions, the youth vote at 18, drug use, divorce, women's rights, civil rights for minorities, more casual sex mores, the changing laws and permissiveness toward pornography, homosexuality, etc. All of these changes occurred very recently and they present an imposing and almost unbelievable agenda of sweeping social change. Of course, the nature and rapidity of these changes impose a moral dilemma for many of us. There are those who long to return to the old values of yesteryear and who are puzzled and angry about the social revolution.

By contrast, while all this turmoil is going on in the society as a whole, even in the home and in the schools, we find that the workplace remains relatively static; the large bureaucracies of government, industry, the church, universities, and the military all remain relatively resistant to change. Authoritarian rules and customs are deeply imbedded and are rather sheltered and secure from the outside environment. Many large organizations, in fact, are very stabilizing forces in our society, being self-contained societies sheltered from the whims and torrents of social change. The organizational leaders in these big institutions continue to respond best to the internal sounds of the cloistered world in which they work. Corporate leadership, in fact, is angry and confused by external noises and view them as an unwelcome disruption to the relative tranquility of the past and as a constant threat to efficiency. Nevertheless, the concern for human values must continue to focus on the workplace for several reasons. First, the individual devotes the greater part of his or her natural life to a paid occupation. We see this demand for paid occupation as one of the great driving forces in the entry of women into the labor force. People's time and energy and physical and mental resources are engaged first and foremost in work. Second, our freedom and our growth in our standard of life depend upon earned income. Third, the role of the breadwinner is fundamental to the family and to self-respect in our society. Fourth, human resources in the United States are the only natural resources that are not in scarce supply. In fact, we probably have more than 10 million unemployed people. Finally, and most important, production, industrial growth, and technological advances in our society are not ends in themselves—they are means to an end; namely, to improve the quality of working life.

Next I would like to deal with the special factors that have a bearing on the military as an employer. The first is the volunteer force, which has made the military much more like a civilian employer. It increases the pressure for effective recruitment, utilization, motivation, and retention of personnel. The discharge rate for first-term enlisted personnel, which is twice as high as it was in the days of the draft, is a reflection of this change.

This high dropout rate, which reflects problems of literacy, medical ailments, financial hardship, lack of discipline, and poor performance, puts great pressure on the military system. The military must compete in an open labor market, and meet the incentive and career demands that prevail on the outside today without the same hunting license or freedom of action that is available to the private sector. Friends recently were telling me of a big corporation here in New York that is thinking of giving a 10 percent bonus to all employees in their management who work in New York City to pay them for the hardship of having to work in New York City. This gives you an idea of the great contrast between this type of license in the private sector and that within both the civil service and the military forces.

The second factor that is affecting the whole labor force and having a big impact on the military—a bigger impact than is true for the society as a whole—is the demand for equal employment opportunity on the part of minorities, youth, and women. The Armed Forces have special problems accommodating these three sensitive groups. Since the changing attitude toward work in our society is especially prevalent among young people, the heavy concentration of youth in the Armed Forces accentuates this problem. It is estimated that more than half of the military personnel are 25 years of age or less, compared with less than one-fourth of this age span within the labor force as a whole. In 1976, according to data in the *Monthly Labor Report* last fall, Blacks represented 16.6 percent of enlisted personnel and 3½ percent of the officers. Less than a dozen years ago, Blacks represented 9 percent of the enlisted personnel and less than 2 percent of the officers. At the same time, women are seeking to enter the Armed Forces more than ever before, but accommodations are taking place gradually. This would represent, it seems to me, a particularly difficult problem in an organization like the military, which has been traditionally a male-based type of activity.

Third, let's take a look at the changing attitudes in our society toward national security. Traditionally, the nation-state has based its legitimacy largely on its functions of preserving domestic order and protecting its people from foreign enemies. Evoking real or imagined threats to national security has been a powerful and a perennial means for rallying public support to the existing regime. The military establishment in our society still has a strong public image, but the priority accorded to national defense has fallen to a remarkably low level in most of our Western societies.

The fourth element having particular bearing on the military is the changing attitudes of our people toward patriotism. There has been a very sharp decline in the proportions of college and high school youth who feel that patriotism is a very important personal value. In 1965, 35 percent of college students emphasized their strong feelings of patriotism. In 1973, only 19 percent did so. A similar decline has taken place among the noncollege youth from whom you would tend to draw more of your enlisted personnel. In 1965, 60 percent of them placed a high value on patriotism; in 1973, that had already declined to 40 percent. So, today, patriotism is an important value only to a minority of American youth—one out of five college youths and four out of ten noncollege youths.

Let us next look at the question of our institutions and where they stand in our society, putting the military as an institution in perspective with the others. We have witnessed, as we are well aware, a marked decline in confidence in all institutions in our society over the past decade. One area which has suffered a severe drop in public support has been with regard to the issue of moral and ethical practices. Last year, those practices among military leaders were rated as "Excellent" by only 8 percent of the public. That puts the military right in with the media, lawyers, small business, average workers, and bankers. Twenty-six percent rated military leaders as only fair, and 7 percent, as poor, on moral and ethical values. That is very disturbing, but if we take a look at the military as an institution in terms of overall confidence, we find quite a different picture. In the mid-1960's, 61 percent of the American public had "a great deal of confidence in the military," exceeded only by their confidence in banks. By October of last year, this steady decline in confidence, which has been going on precipitously in all major institutions, resulted in a vote of confidence in the military of only 27 percent of the American people.

If we take a look at a recent Gallup Poll on confidence in institutions, we find that 23 percent of the public had a great deal of confidence in the military. However, to put this in perspective, the military ranked third among all institutions in the United States in terms of "a great deal of confidence," only falling behind medicine and the banks. If we were to combine the data on a "great deal of confidence," and "quite a lot of confidence," the two highest gradations out of a ranking of five, then the military has a support level of 67 percent, exceeding the combined rating for the church, which had 64 percent, and falling slightly below medicine, with 73 percent. This reveals to me a quite strong reservoir of public confidence in the military, with the military retaining a much higher degree of public confidence than the Supreme Court, the Congress, organized labor, big business, and the presidency. This is certainly a basis for hope and an indication that there is something strong there to be built upon.

Finally, turning to the point on incentives, we are all aware that there has been a kind of parade of reviews of military pay and benefits. A new commission is appointed almost every year, and this is an indicator of the growing dilemma about military compensation and about public compensation in general. These economic pressures are so great and so complex that I could only mention them and draw your attention to the fact that they are an obvious external force bearing down on the military services. Yet, as I said, the military must compete more than ever in the open labor market without the flexibility or the market power of other employers with whom they compete. The reevaluation of the 20-year

pensions and the proposal for pensions to commence at age 55 are heating up and can have a major effect upon recruitment and retention, especially among career officer personnel.

In conclusion, in terms of the special issues affecting the workplace of the military, we see that we are living in a society that has a peacetime psychology, a lowered national attitude of importance placed on national security as a concern, and a major drop in patriotism as a value among the young. All of these impose new challenges for the armed services among both military and civilian personnel. The marked drop in confidence in all institutions poses a threat, but the military ranks up with the top three, and continues to retain a reservoir of public support which should be nurtured and strengthened.

PRODUCTIVITY PROBLEMS IN THE MILITARY SECTOR WHICH STEM FROM MOTIVATIONAL PROBLEMS: PANEL DISCUSSION

Panel Moderator: ***Mr. William Paz, Director, Office of Civilian Personnel***
Panel Members: ***Mr. William Paz, Director, OCP***
BGEN John Johns, USA, Director of Human Resources Development
RADM James Ahern, USN, Deputy Comptroller
Dr. David Taylor, Hay Associates, Former Assistant Secretary of Defense for Manpower and Reserve Affairs

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Mr. Paz: During this conference, we are going to have two panel discussions—one today and one tomorrow. We hope these discussions will provoke thinking on the part of our conferees and result in more meaningful discussions in our workshops. The panelists this morning are going to be talking about the military's productivity problems that stem from motivational problems. Since I am moderating the panel discussion, and am also one of the panelists, I will begin.

Productivity has been referred to as the very hottest new word in public administration circles. At the abstract level, productivity seems to be very simple—an uncomplicated concept. In researching the subject, I quickly came to the conclusion that there is simply no commonly shared definition of productivity. The term tends to be intertwined with the concepts of efficiency, cutbacks, measurement, effectiveness, and performance. The economist, industrial engineer, manager, and personnelist all have their own perspective on productivity and on the factors which impact on productivity. The economist usually focuses on product factors, measuring productivity in terms of input-output ratio in accordance with a standard (i.e., the efficiency of operations). The industrial engineer tends to focus on process factors, emphasizing concern for work flow, equipment, measurement, and controls. His efforts commonly focus on simplifying the job, the way jobs are accomplished, etc., through automation. While the manager and the personnelist must recognize the importance of these two orientations, their primary focus is on the people factors, including considerations of motivation, job skills, and the quality of work life. Their emphasis is on the people who are producing the needed goods and services.

As a manager and a personnelist, I tend to approach the question before the panel by focusing on the people factors affecting productivity and motivation in the military services. My interpretation of the question to be addressed is: What characteristics of employment in a military organization impact on the productivity and motivation of the civilian work force? To answer this question, I must ask another question. What makes the military services unique among government agencies, other than their mission which makes each agency unique? My answer to that would be the leadership role of the professional military officer in carrying out public policy relative to national defense. Political appointees or elected officials and civil servants are common to all government organizations—federal, state, and local. The professional military officers, the cadre of individuals trained throughout their career to be in command and who occupy most key management positions, are unique to the military services. Thus, military services can be characterized by complex interactions among political appointees, military officers, and career civil servants.

The formal chain-of-command, originating with the President as Commander-in-Chief through his appointed secretaries of defense and other services, follows the military officer chain to the operating forces. Since individual career civil servants are rarely in this direct chain-of-command, they may feel no direct responsibility for the efficient and effective accomplishment of agency mission. The formal chain-of-command is a formal characteristic of military organizations. While I do not intend to apply any value judgment concerning this fact, I believe that management of the military services through the chain-of-command has significant implications for the productivity and motivation of the civilian work force.

Having described what I believe to be characteristic of the work environment in military organizations, I will address three aspects of this environment which cause productivity and motivation problems. The first is *transitional management*, a method of management based on the planned, controlled, and continuing change in officer assignments every 2 to 3 years. This method is not totally unique to military services; elections cause periodic leadership changes at all government levels. Further, most private corporations use this method of management to some degree.

There are some positive aspects of transitional management. New leadership styles bring fresh information into the system. New management problems or new management approaches may similarly bring new solutions to old problems. The officer brings knowledge of the military bureaucratic system and knowledge of how the shore establishment can best support the operating forces and enhance the shore establishment's credibility with the forces. There are, however, some problems with transitional management. An important one is the potential negative impact on motivation and productivity of the civilian who

must cope with this continual and predictable change. The new leader often has motives and plans that differ from those of his predecessors. He may change objectives, reorganize, establish new priorities, exhibit new managerial styles, etc. This situation may force the civil servant to be well-versed in compromise, accommodation, and conformity. If this transition to new management is not carefully orchestrated, the civil servant may become apathetic, lose his incentive and initiative, or withdraw his commitment—all of which can only impact negatively on productivity.

In summary, transitional management may have a negative impact on productivity and motivation. However, its positive aspects—new leadership, new ideas, and improved service to the operating forces—are of such overriding importance that transitional management must be viewed as a fact of life in military organizations. Given this fact, we must recognize its potential negative impact on productivity, identify any problems caused by transitional management, and design ways to alleviate these problems.

The second aspect of the work environment in the military services that impacts on productivity and motivation of the civilian workforce is *delegation of authority and accountability* to the chain-of-command. While chain-of-command is absolutely essential to efficient accomplishment of mission, translation of this precept from the battlefield to the bureaucracy creates a situation rife with potential conflict and frustration for both the officer and career civil servant. The officer is assigned to positions where he is expected to exercise decision-making authority and be accountable to the chain-of-command for mission accomplishment. Captain Howard Norman Kay, USN, in his article entitled, "Managing The Shore Establishment," published in the December 1977 issue of the *U.S. Naval Institute Proceedings*, observed that, "Successful management of a major diversified shore establishment is a challenge of the first magnitude which bears little, if any, similarity to commanding a surface ship, submarine, or air wing at sea." Captain Kay goes on further to state that: "Unlike his seagoing contemporary who has grown in the company of the men, ships, and aircraft whose efforts he directs, the shore commander arrives at his command barely speaking the language of the organization, let alone knowing the rules of engagement."

Specific problems facing the shore commander which bear little resemblance to those encountered at sea include matters related to financial management, civilian personnel management, unions, nonappropriated fund activities, security, housing, community relations, energy, affirmative action, just to mention a few. Compounding the officer's problems and perhaps increasing the potential for frustration, he must depend upon a civilian workforce of which he may have limited knowledge and understanding to get the job done.

The career civil servant, on the other hand, is rarely vested with decision-making authority and seldom is even held accountable for task achievement. In this statement, I am not referring to civilian employees in key executive and management positions. Rather, I am thinking of those civilians occupying middle management, first-line supervisory, and senior journeyman level positions who are critical to the effective accomplishment of our mission. Their role is primarily that of providing advice and counsel to the decision makers. While this is a valid and essential role, the ambitious, creative civilian who is motivated to task achievement soon recognizes that he can never truly be in charge. As a result, he will either leave the civil service, or he will learn to accept the defined role, conforming to the expected norms and stifling his creativity and initiative.

The solution to this problem is not anarchy. We cannot change the system. Organizational reality cannot allow everyone to be in charge, obviously. The solution lies in basic human relations theory. When management treats each individual as a unique entity, and does everything possible to create conditions that allow each individual to use his capability to the fullest, then the motivation to be productive derives from the work itself. The work must be challenging and demanding, and employees must be held accountable for task achievement. It has been observed that, if you wish to destroy a person, give him lots of meaningless tasks to do.

If we are to improve productivity in the military services, we must make our civil servants accountable for their actions by establishing performance standards. We must define what needs to be done, at the lowest level possible within the supervisory chain; that is, we must identify and clearly state qualitative as well as quantitative standards of performance and maintain a work environment that encourages and rewards performance excellence. No amount of motivation will ensure continued high performance unless individuals know what is expected of them and that they will be rewarded for task achievement.

The third aspect of work environment in military service is what appears to be a *lack of military-civilian mutual respect*. In this regard, I would like to quote from a three-page memorandum I received from a manager out in the field who heard that I was going to be serving on this panel. He says:

> There is a continuing debate at the national level about every factor of military life. The military is cut down daily, and the lack of support is most notable among senior civilians in the Department of Defense, and members of the Executive Branch, the Congress, and the national press. The constant barrage of one-sided, degrading attacks depicting the military as a ripoff of the taxpayer results in a loss of pride in the service. The reduction of public esteem has led to the reduced status of the serviceman. The loss in productivity is attributable to low morale, high turnover rate, and disciplinary problems.

> In times of relative peace, the public views the military as a caretaker force. Caretakers rank low in today's society. The work that is done by the military must not only be challenging and worthwhile to each individual, but it must also be held in esteem by the public. Even though improvements in pay, benefits, and working and living areas have been made, the military are viewed as second class citizens.

One perception. Now let's take a look at how the military—and other groups—view the civil servant. Apparent lack of respect for the civil servant is a problem for all levels of government—federal, state, and local. The general public believes the government is inefficient. Carter's recent proposal for revitalizing the merit system, and all the innuendoes about the necessity for doing so, has reinforced this belief. This lack of esteem for the public service permeates society as a whole and has to affect the way the military officer perceives the civilian workforce. You have heard the comments: "You can't hire 'em, you can't fire 'em, you can only yell at 'em," "Overpaid and underworked," and "When 4 o'clock comes, stand upright or you'll be crushed by the stampede." The list goes on. Is the perception a self-fulfilling prophecy? It has been said that only the supervisor can give a worker self-esteem, and no one else can deprive him of it as easily. Without self-esteem, employment in a large organization, such as the federal public service, will become an increasingly empty and nonrewarding experience regardless of fringe benefits. And without self-esteem, work gradually deteriorates from an opportunity to discover one's own potentials into a breeding ground for frustration, conflict, grievances, and appeals.

A fundamental condition for a highly motivated, productive workforce has to be a climate of mutual respect between leaders and led. If all of our decisions concerning management of our own human resources were made in the context of a value system based on respect for the dignity of the individual, I believe we would see concrete improvement in workforce productivity and motivation.

In summary, I have talked about three aspects of employment in military organizations which may impact negatively on productivity and motivation of the civilian workforce; namely, transitional management, delegation of authority and accountability to the chain-of-command, and lack of military-civilian mutual respect. I have not addressed specific solutions to these problems since that is the task of tommorow's panel. Before closing, I would like to mention a two-sided problem which I feel permeates all discussions of productivity in the public service. One side of the problem, of course, is the inability to arrive at a commonly shared definition of productivity. The other side is how to deal with productivity and, as a corollary, how to determine who should deal with it. The answer to the latter, of course, depends on how we answer the first. There is indeed more than one definition of productivity. We must arrive at a conglomerative definition which unites the valid concerns of the economist, the industrial engineer, and the humanist. Leadership responsibility for the various aspects of productivity must be assigned, problems identified, and synthesized actions taken. I believe very strongly that this conference will result in just that.

Our next panel speaker is BGEN John Johns, United States Army, Director of Human Resources Development. General Johns.

BGEN Johns: I will confine my remarks to the things that pertain to the Army and maybe the Marines. We may have some different problems than the Air Force and the Navy. We recruit a different type of person, and we have a different type of activity in many of our units. Thus, I will give you some nonscientific, layman's views of what I see in the way of motivational problems.

I would start off by saying that I don't see a drastic change between the behavior of the soldier who entered the Army in 1947 as an enlisted man and that of the soldier of today. I just returned last summer from an assignment in an infantry division, and I still saw the Beetle Baileys, the Snuffy Smiths, who plod along from day to day. We have some real problems in dealing with this kind of soldier, particularly in peacetime when you practice, practice, year after year with never a game being scheduled. I don't believe that any football or basketball coach would be able to keep his people motivated at a high pitch of what the scientific management gurus call efficiency if he never knew when they were going to play a game. My experience in the military has been that we waste about 40 percent of the training and maintenance time, and he who tries to keep the troops fired up at fever-pitch, day in and day out, will soon exhaust the morale and esprit de corps of a unit.

We also have the transitional management that was just mentioned; that is, every 18 months we have a new commander who views his new assignment as his chance to be a field marshall. He goes full-speed ahead to impress his bosses, manipulating the statistics, and the poor little soldier down there just plods and plods because here-we-go-again. The NCO's also have to cope with that problem. If we talk about organizational development or organizational effectiveness and the techniques that I know are going to come out during the next few days, we ought to be mindful of the fact that many of our activities do not have the output that lends itself to rigid measurement. Most of our soldiers are one-termers, and still have the norm that was there in '47 when I came in; that is, you are not supposed to be very eager, energetic, and "gung ho" to get things done.

Let me give you my observations of what I see in the line soldier in the Army today, and how this is a turnabout from former years. We have gone very much toward the scientific management approach; that is, toward doing a front-end analysis of what each job is supposed to be and what actions are expected of the individual in that job, and then developing tests which measure skills that an individual is supposed to bring to that job. We call it the Skill Qualification Test.

We also have measurements of unit training and maintenance. For example, you can give an infantryman or a rifleman a *Soldier's Manual* which tells him, in very clear language, about the *Reader's Digest* level, precisely what he is supposed to do. The squad leader who is in charge of about ten of these fellows has a job book, which has little entries for each of them. The squad leader is supposed to sit down with his soldiers and say, "Here's what your skill level is going to be, and furthermore you're going to be tested on this, and your promotion is going to hinge on your performance of this." Logically and rationally, we have this system laid out very well. The rational managers, the scientific management folks, say we have done well. But what do I see coming out of this? I see the same kind of behavior; that is, very little motivation on the part of the soldier who is worrying about whether he's going to get promoted, whether he's going to do well.

Two weeks before the annual Skill Qualification Test, the commanders tell us we should block out 2 or 3 weeks so their people can prepare for these tests. And my answer is: "No, you have all year for that, and individual soldiers should be preparing all year long." The fact is they don't. They cram for it just like they would for an exam. We schedule this exam once a year, and they wait until 3 or 4 weeks before it is given and then they cram for it. What I'm saying is that the motivational component is not there.

Let me make some general observations about how you motivate people to do things well in the Army. Traditionally, we have relied a great deal on unit identification, not on wages, measures of individual performance, or individual rewards. Instead, we have relied a lot on esprit de corps and cohesion. I want to make it clear right now that one of the biggest factors of productivity in the Army is unit effectiveness, the final product of which is measured in battle. I think unit cohesion and esprit de corps are end products we have to enhance and to measure.

What makes esprit de corps and unit cohesion? Well, we used to have a lot of parades and ceremonies. We had NCO Clubs, Officers' Clubs, dining-in, dining-out, where you went in formal uniform and you created this very close sense of identity. You didn't have such rapid turnover then. You had most of your soldiers living in barracks, creating unit integrity where they lived together. Most of your noncommissioned officers were single living in the barracks. There was a great deal of unit cohesion and identification. There was also a lot of competition between units. This is the spiritual component of what makes an outfit work.

Now, what's the current situation? Well, the activities and the equipment are more complex. It takes a great deal more training to get high proficiency in the use of this equipment. It takes a lot of training to get this equipment coordinated well for battlefield action. Much of the reason for our going to scientific management is the need to enhance efficiency in handling this sophisticated equipment. However, I think the scientific management mentality has permeated the military—the PPBS System has fostered this trend, where you want everything measured, you want a very clearcut cost-benefits analysis of what you do.

One thing that hasn't been mentioned is emphasis on the individual—a shift away from *group* identification and orientation and toward *individual* achievement and *individual* success. I see this not only in our individual soldiers but in our noncommissioned officers corps and the officer corps. When I meet with officers and talk about personnel management, during the question and answer period, they invariably ask about the promotion time in grade and what it takes for them to get ahead in the Army individually, but never about the success of their group.

There is a changing nature of the military—a feeling that military service is more like a job now than it was before. Thirty-eight percent of our E-2's are married; 38 percent of our E-3's; 54 percent of our E-4's; above that, almost everyone is married. They live off post. We give them economic affluence—even the private that comes in makes about $475 a month. He can have his stereo and his individual car, and he has his place off post. These are some of the reasons why the emotional appeal, the parades and ceremonies, the appeal to unit pride and esprit de corps, are less effective than before.

Now, if this is true, what should we do? Should we try to roll back to the sentimental, nostalgic military of the past or should we try to develop more systematic techniques to get commitment and unit identification in the world that we live in today? I find in talking with my colleagues, particularly senior noncommissioned officers, that there is a lot of nostalgia about the good old days. But I am not sure that that is applicable anymore. On the other hand, I don't know if we should junk this old idea of the military and proceed to develop a workplace, job-oriented mentality. Perhaps we can use organization development techniques, management by objectives, or behavior modification (behavior modification is no more than positive leadership systematized). We can use contingency reward systems: Since the Pay Commission has recommended that the Secretary of Defense be given discretionary authority for allocating the pay raises each year, we can give the pay raises to those with skills that are most critical to the military.

In my opinion, if we go to the marketplace, economic way of handling soldiers, they will begin to view themselves as an economic commodity—an attitude that will further the idea that military service is just a job. When that happens, we will have to focus on economic extrinsic incentives. For my own part, I don't like that approach. I don't think we can win wars if we go too far in that direction. Instead, I believe that we should look at ways of increasing soldier participation, that we should use management by objectives as Peter Drucker designed it, not as it has been instituted by McNamara.

Finally, I believe that the senior NCOs and officers, the leaders in the services, should be educated to understand the changes that have taken place and not be technocrats. I know that the Navy now requires 80 percent of their ROTC scholarships to be in the hard

sciences. The Army is pushing in that direction although maybe not that far. I think both services should take a hard look at this. I don't believe the major problems of leadership are due to lack of technical expertise and technical knowledge, but, in the lack of knowledge of how to motivate people.

Mr. Paz: Thank you, General Johns. Our next speaker is RADM James Ahern, USN, Deputy Comptroller.

RADM Ahern: I thoroughly appreciate being invited to speak here for basically two reasons. First, I do believe that motivation is the key to productivity, but, then, again, I believe it's the key to almost anything. Second, I was told I did not have to have any answers—that all I would have to do is outline the problem and you folks would provide the answers. I thought that was the greatest invitation in my whole career. In any event, my perspective concerning productivity is from the level called "trying to get more for a dollar"; that is, in the comptroller chain. I think that most of us in the Navy feel we have a productivity problem, at least the statistics seem to tell us so. Consequently, I thought I would take a look at the data for the last few years once again, and then try to group the problems into two basic categories; namely, those affecting us as managers and those affecting the employee, the sailor, the soldier, etc. Looking at the measurements, this is what we see based on a Department of Defense directive that came out in 1975 (see Figure 1). It told us to establish the base year as 1972 and to use 27 functions, which must have been pulled from an industrial handbook of General Motors, to group what we do into those functions, and then to get our measurement totals up. The only goal was to get our workforce under a work measurement system and then try to increase the output on those 27 measures. As you can see, those 27 functions definitely do not define the Navy work process. For example, there's not a single measure for enemy attacks repelled per hour, not even in a practice, and yet that unfortunately happens to be our output measurement when the chips are down.

I'd like you to know that the workforce, on which the productivity index is based, includes patients, students, transients, and prisoners. So, if you're like me—in the 19 percent of people who can't enjoy their job because they're too tired from working too hard—you end up in the hospital. The more people we work hard, the more we send to the hospital as patients, and down goes your productivity index. The same goes for students. People need to be educated to be more productive so you send them off to school. However, the more people you have in school, the lower your productivity index. I do believe there is some point in cutting the transients down and getting more people into the direct workforce, and I would like to see less prisoners, although, unfortunately, that statistic is on the increase. However, the present inclusion of patients and students in the workforce is certainly an incorrect approach.

Productivity goals based on the private sector really have no basic logic. No one has given much thought to the fact that we have a Navy which is exposed

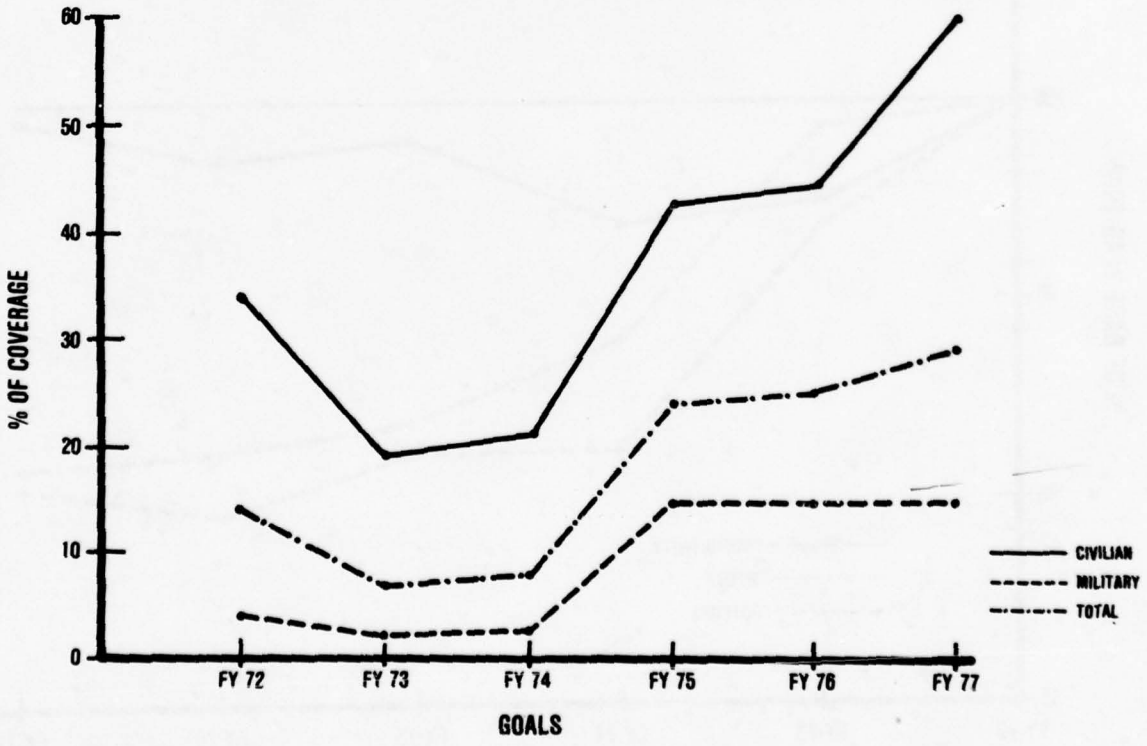


Figure 1. Navy personnel covered by productivity measures–preliminary estimate.

to political pressure which does not allow base closures, even though this would increase productivity. This creates a situation of an increasing overhead to direct labor ratio. The net result is that you have less direct manhours that are actually producing something and too many people who simply must be there to keep the base open, guarded, lighted, etc.

So anyway, as shown in the slides, we've gotten the measurements statistics up, in terms of the number of functions we measure. So, I am sure everybody is going to be happy.

Taking a look at this next slide (see Figure 2), you can guess what OMB is thinking about how well we're doing when it comes to the thing called output over input, or productivity. Now this will confuse you if you wonder how we can go up in the amount measured and down in inputs and outputs. However, keep in mind that the workforce went down 27 percent over the last 5 years. Yet, every time we bring out a new function and measure it, we have to take the base back to 1972. Since there were more people working in the function in 1972, the curve comes down. Anyway, if you believe these indicators, which I don't, over 5 years we have become more nonproductive than when we started. This false image is not doing much for us in the budget process, I can assure you.

Let's take a look at how the other services and the rest of the country are doing. I plotted the next slide (see Figure 3) using the same measurement system, and now you can see why civil servants are frowned upon as workers. According to this, everybody else in the federal government is doing better than the DoD civil service and military. As you can see, the Air Force once again has done brilliantly, as they generally do in all measured types of arenas; the Navy has done very poorly; and the Army has either learned to count better or improved productivity dramatically from 1975 to 1977.

The next slide refers to capital investment (see Figure 4). As we all know, this country went through a period of great growth, and it did that by plowing money back into capital investment. That was before we had a net outflow of funds of around $50 billion available for that purpose. Now there are many nations who lead us as to the portion of their gross national product which they plow back into capital investment; you might recall that 60 percent of all productivity is assumed by the economist to generate from capital investment and manufacturing technology improvement. I get a big kick out of the Navy position. We're not doing much, and the 3 percent we have invested is not doing much for us. That's because, as we all know, it takes 2 or 3 years after you buy something and get it on line before it begins to

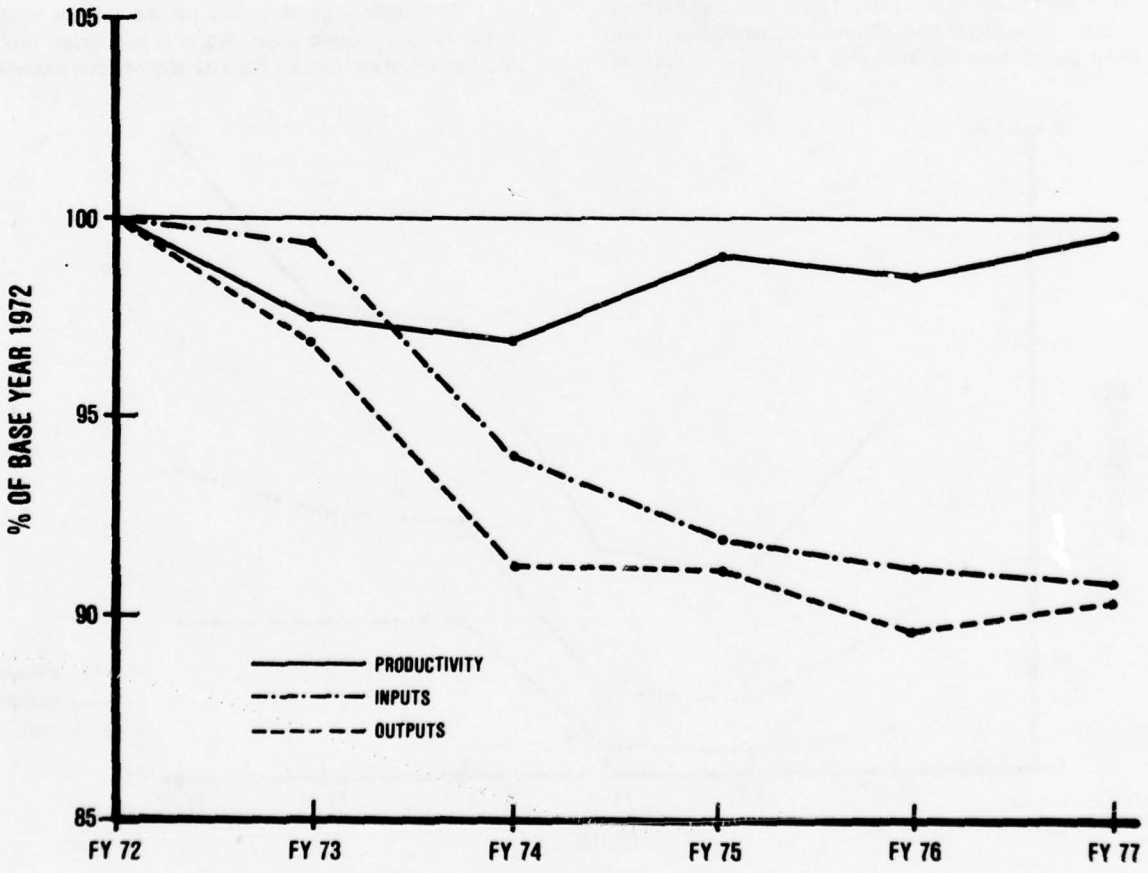


Figure 2. Navy productivity index–preliminary estimates.

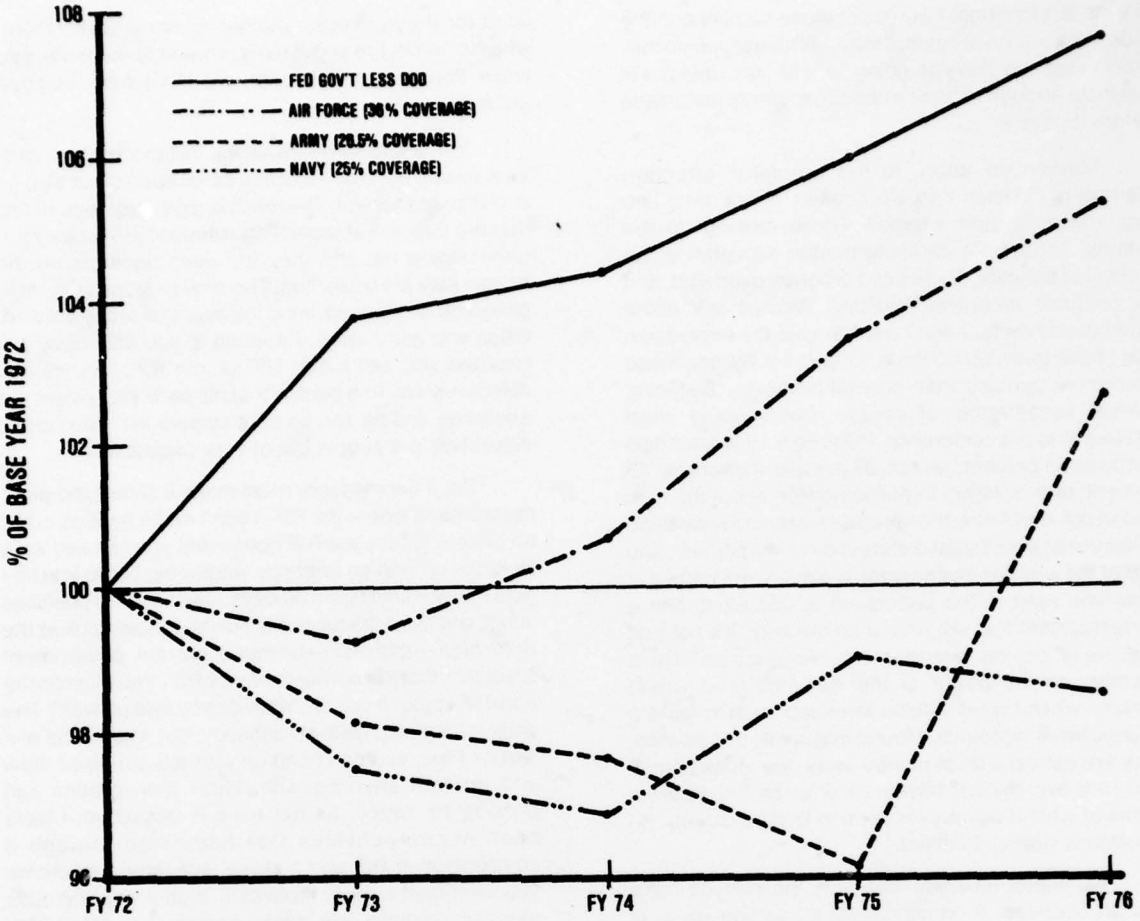


Figure 3. Productivity performances–FY 1972-FY 1976.

	CAPITAL INVESTMENT % OF OUTPUT 1960 — 1976	AVERAGE GROWTH IN PRODUCTIVITY 1960 — 1976
JAPAN	29%	8.9%
WEST GERMANY	22%	5.9%
FRANCE	20%	5.7%
SWEDEN	19%	5.7%
U. S.	15%	2.9%
NAVY	3%	-1.5%

Figure 4. Capital investment and growth in productivity.

pay off. But I thought I would put those numbers on the slide because, once again, if they ask for a report on this, that's what the Navy is going to look like unless I'm fortunate enough to have a chance to clarify the picture before it goes in.

Moving on, then, to the problems affecting managers. These can be broken down into two sets—external and internal. Those making up the external set are (1) declining market acceptance, (2) erosion of benefits, (3) directed program overhead, and (4) resource allocation flexibility. When I talk about external problems, I don't want to give the impression that I have given up on them. In fact, I'm fighting these even more perhaps than internal problems. Declining market acceptance, of course, has already been referred to in this conference. In the past 10 years, ships are down 51 percent; aircraft, 27 percent; manpower, 25 percent; and, contrary to public opinion about the high cost of our workforce, the take-home pay of the average military man in constant dollars is down 14 percent, and that of the average civil servant, 4 percent. Be careful of what you read in the papers—it is difficult to find a correspondent that will write it up our way. It's not true that we're paying people more. To illustrate, I'm a member of the board of the Navy Federal Credit Union—when I used a dollar level approach to looking at depositors' accounts, I found that, while people think they are putting a lot of money away, the value of their accounts over the last 10 years is down by 12 percent in terms of what it will buy for them in today's dollars. So inflation is having its effect.

No matter how you look at it, the Navy is not a growth business. A growth business, as you know, is great; everybody is easily motivated, because they perceive that they are going somewhere. It is pretty tough when you are in a business that is shrinking, with all of the problems that shrinkage brings. People in this country, including those in the military, really have never been trained to manage nongrowth.

Another point about erosion of benefits in regard to management is that I do not think it is just the dollar value of the erosion that is demotivating. What is demotivating to military and civilian executives is the erosion of the "prestige benefits." These executives put up with a lot of negative aspects in their Navy careers, looking forward to the day they would attain such "benefits." Now, many of these benefits have disappeared.

Next, I want to mention overhead. You have all heard about this before. This is one of the many things people from outside the Navy tell us to program for to help us to be better managers. Let me give you a few cost figures. We get military construction dollars which we like to use for such things as providing living quarters for our unmarried personnel to keep them intact as a unit and to form some esprit de corps so they will not want to move out and buy an apartment or rent one they cannot even afford. Out of $700 million in 1977 military construction money, we had to include, as a directed program, $160 million for ocean pollution abatement. When you remember that this kind of money has to be used for these things, whether or not you like them, whether or not the populace is worried about them, you know the kind of detraction we have from external groups.

You are all familiar with the last external problem. That is, you not only receive a dollar control but also an end strength control. The result is a group of regulations that are directed at protecting somebody—yet they are undermining us, and they are even undermining the people they are protecting. This next slide (see Figure 5) gives you an idea with what the manager today is faced. Often you get a cut in the budget, you only have two choices: you can either RIF or not RIF. You cannot selectively say to a person that his particular position is abolished and he can go on a stopper list. You cannot selectively put people out of your organization.

So, if the manager must make a choice, he picks the left-hand side—the RIF. I don't mean he likes it, but he prefers to take the RIF option and you can see why. He ends up with an unhappy workforce, but at least he gets it over within about 90 days. He has all his positions intact and all of the turmoil is finished. Now, look at the right side—non-RIF—because current government wisdom is that it is not fair to have a RIF. You must go the non-RIF route. If you do, what do you end up with? The work force is not quite as unhappy, but what is the end result? First, you don't end up with a team—you don't end up with anything with which both groups can possibly be happy. So the team is destroyed. I have been in two activities that had to go through a combination of RIF and non-RIF with large reductions. We went from a really motivated, high-producing outfit to a very unstable, low morale organization. We had to start all over, reassuring people that we did the very best we could. Instead of working at doing a better job for the following 2 years, it took them about that much time to "recover" to the point where the employees recognized we had done the best we could, and we were finally back once again to accepting the problem and moving on. So, I do believe there is a need to start remembering that people are paid for work and not paid for simply being retained.

The problems that are internal to the Navy are (1) absence of top management commitment, (2) organization is geared toward control rather than planning, and (3) lack of meaningful objectives and goals. In discussing the first one, let's be honest. Looking back over the period beginning in 1972, when we started to measure productivity, I wonder whether top management—I am talking now at the Secretariat and the CNO levels— have been really committed to productivity. If there was commitment at the top level, it has been well masked. However, I am sure that, lower in the organization, all kinds of efforts were and are going on. You have heard many of them mentioned this morning. Admiral Hoffman has a large effort going in the shipyards, but there is no real top management (i.e., Washington) interest, let alone commitment.

I found out the reason for that was me. After I investigated what was going on, I found that the Financial Management part of the Secretariat was in

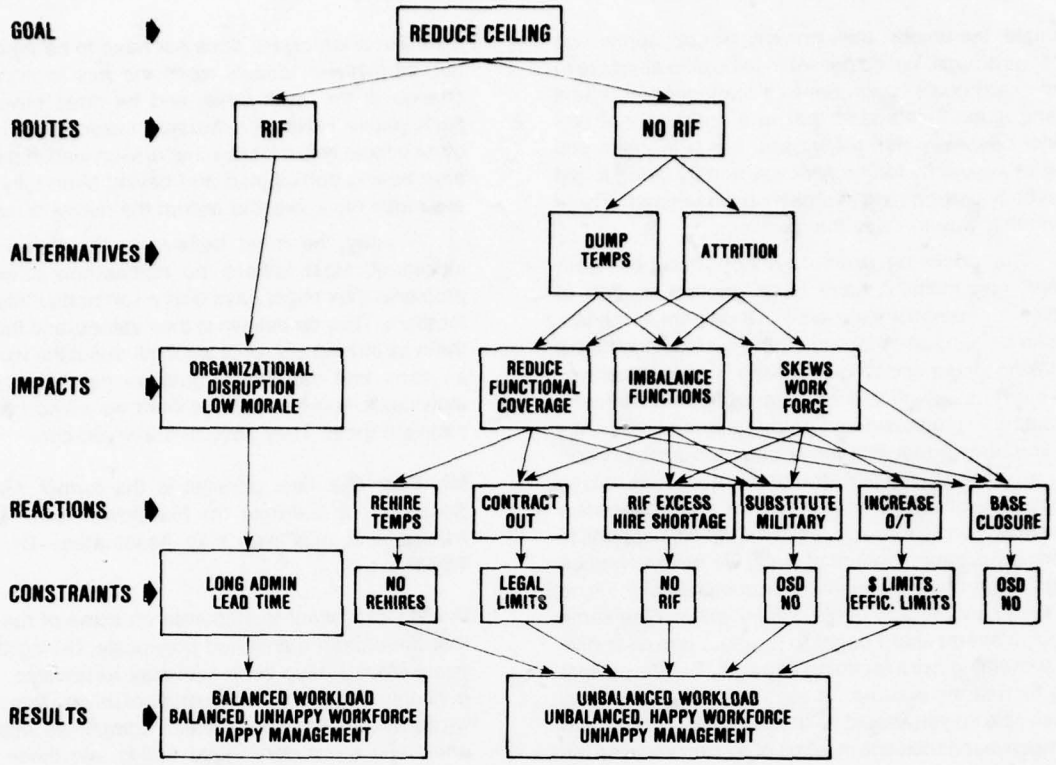


Figure 5. Management dilemma.

charge of productivity. I thought, there is something wrong here. I don't think you motivate people by measuring them from the aspect of financial productivity standards. I think what you really ought to be doing is motivating from the top down, starting with the people that are responsible for meeting the objectives of the organization—and that certainly is not the responsibility of the Assistant Secretary of the Navy for Financial Management. He is expected to do much the opposite. He is the guy that marks budgets, and that is not very motivational.

I had a briefing with the new Secretary of the Navy. He comes from the railroad industry where productivity is also a problem. He saw this problem immediately, so now we are going to have the Assistant Secretary for Manpower, Reserve Affairs, and Logistics put in charge of productivity. We are establishing a Productivity Coordination Council which will hold a full day's review twice a year. The Council is made up of the top leaders in the Navy, including the Chief of Naval Material, the Vice Chief of Naval Operations, the Assistant Commandant of the Marine Corps, and all of the Assistant Secretaries of the Navy. Their objective will be to set goals and, hopefully, these goals will not be all one-sided, but will have both value-of-life and output considerations. In fact, as a member of that group, I am going to help make sure they do. In any event, we are late in entering an area which has been so obviously in need of attention. Now that we are beginning to move, let us hope we can keep the momentum going.

Next, let's take a look at the problems of employees. While the work ethic may be down a little, many people are still working even though they could go on welfare and be supported for nothing. Thus, I believe that most people really do like to produce something and to feel that they are part of a unit. They have a purpose in life. In addition, there is the problem of a decline in desire to serve for patriotism's sake, which results in a move toward market-place mentality. Here the erosion of benefits enters as an important factor. But, far worse than the erosion of benefits is the very uncertainty about those benefits. In the military, there has been nothing more debilitating than this constant haranguing about the benefit package. Shall we take the commissary away? Shall we cut this, shall we cut that? What about hospital benefits? You know, no one will pick on one thing and stick to it. Consequently, military personnel are too busy reading the *Navy Times* to see what they lost last week to do much work this week. It has got to stop. Maybe the Blue Ribbon Pay Panel will take all of our benefits away, but at least it will be over. In any event, it has to come to a stop. Somebody has to make a contract, a commitment—at least unions get that much. They get a contract, they know for 2 years that management cannot "assassinate" them. We thought we had a lifetime contract. It just doesn't turn out to be true.

Another problem is one already referred to by General Johns. That is that there has been an increase in people looking to other groups for satisfaction; for

example, the unions, their bowling league, some race relations groups. We do not seem to be able anymore to keep group goals congruent with management or unit organizational goals, and that is a problem that you cannot buy away with pay raises. It is a problem you have to work at by forming a team, and by trying to get everybody participating in obtaining those goals. There is no other way to solve that problem.

The declining promotion opportunities, both civilian and military, have been another source of problems. Promotions are down 18 percent in the last year for civilians and those for both enlisted and officers are taking longer and longer. Making matters far worse, however, is all of the overhanging mechanisms pertaining to promotion and grade determination. Let's say you have a unit with ten people and a supervisor, and, as a result of a RIF, the unit is cut to six. Along comes a classifier who says that since the supervisor is only supervising six people, even though he happens to be doing the same amount of work, we have to reduce his grade. If I hire someone to accomplish something and then I cut the size of his unit but still get the same output, it seems that I ought to promote him or to give him something extra for doing the work. But the system calls for just the opposite. It says you are supervising less people so you should be downgraded. There is just too much mechanization in terms of placing value on the person's job. It is hurting morale.

Now, I'd like to talk about deteriorating hygienics. If we were to take all of our physical plants in the Navy—our ships, plants ashore, etc.—and if we were to just freeze deterioration and spend the same amount of money we are spending today on real property maintenance, it would take 8 years to restore them to livable, habitable structures. That is how rundown they are. For example, the average age of our auxiliaries is 27 years, and they were built to die at 30—to completely fall apart. There is nothing motivational about working in that kind of a climate. There is nothing motivational about going to work in a warehouse where the ceiling leaks, where everything is old and dilapidated, and where nothing is being done to improve habitability or, for that matter, equipment because of our low capital investment. So I do believe that hygienics are important. I think a person likes to come to work in a nice, clean, bright, lively place and not in a rundown deteriorating facility. I notice that, at the Secretariat level, we are rehabilitating all of the office spaces. I hope that once we have done that, we will carry it all the way through the Navy.

My last problem is one Mr. Rosow put in many different words this morning, and it is one that means a great deal to me. I hear a lot of talk about how to be a good manager; that is quite impersonal to me. How to be a good leader is a little closer. How to be a father is perhaps the way we ought to start thinking. I happen to believe that, in any organization, there can only be one boss. As far as I'm concerned, the manager should be the top guy. I don't believe you can have every "staffer" telling other people what to do. I do believe in the chain-of-command, and in the fact that there can only be one person in charge. However, that one person has to think like a father. He does not have to be permissive but, certainly in today's world, he has to accept the change in the work ethic, and he does have to be participative. He is still a decision maker, but he must let other people help if for no other reason than that people, after having participated and having been fully heard, are much more likely to accept the decision made.

Lastly, he must believe in the value of the individual. Most fathers, no matter how severe the problems they might have with a son or daughter, care for them. They do believe in their values, and they treat them as individuals. Until we think about the workforce as sons and daughters, until we care for them as individuals, until we truly love them, we will not be able to motivate them. They have to know you care.

Mr. Paz: Our final panelist is the former Assistant Secretary of Defense for Manpower and Reserve Affairs, and now with Hay Associates—Dr. David Taylor.

Dr. Taylor: I want to elaborate on some of the things that have been mentioned previously. During the last years since I have been with Hay Associates, I have gone into a considerable number of private firms. What we continually find is that healthy companies, that is, the ones who are making good profits, are those where goals are understood throughout the organization, where the top management of the company understands where the corporation must go. Top management can articulate that to core management, and then this is funneled down through the organization. We have various instruments for measuring this phenomenon.

Further, there has to be an action followthrough; that is, the reward system has to reflect the kind of goal setting that is done at the very top. When I was thinking about the topic of this panel and then reflecting back on my experience in the Pentagon (where I served first with the Air Force and then with DoD), I thought of all the various projects that generated conflicting goals within these organizations. This resulted in a tremendously difficult job in terms of motivating people for high productivity.

When I first joined the Air Force, the big deal was civilianization. We had goals for civilianizing all kinds of jobs. Everybody who had been around the Pentagon for a number of years said that was in anticipation of starting to cut down the number of civil service jobs, and I said—oh, they certainly wouldn't do a thing like that. But before long, we were in exactly that process as we moved into a conversion of tail-to-tooth. Remember that? That beautiful phrase? I never cared for it since I was always part of the tail.

The next step was a radical change in contracting out rules, which came from one of my former employers, OMB. Once again there was a radical shift in the pattern of employment and in the values and goals of the organization. It had a very serious effect on motivation and on productivity, I am sure. Then another OMB innovation, the MBO process, was applied—veneered would perhaps be a better way to put it—over the PPBS

system. Fortunately, it didn't seem to do too much damage because it didn't get far enough down into the organization to really stain anybody who had any direct responsibilities. It was mostly a paper processing activity on the E ring of the Pentagon and maybe on parts of the D ring.

Then, in the Air Force, we went through a year of readiness where logistics was the big thing. We were going to get our airplanes up in the air in a much shorter time, so there was kind of a reversal of the tooth-to-tail activity—although the logisticians would take exception to that comment. This was then the big focus for a considerable amount of time. As I was leaving the Pentagon, the buildup in Europe was beginning. Therefore, people were beginning to look askance at CONUS activities. This project then began to impinge on behavioral managers throughout the military.

Now what was the reason for all of these changes in objectives? I think there are several. One, as Mr. Paz already mentioned, is transitional management, which not only applies to the military leaders but to the civilian leaders as well. On the political side, an assistant secretary will serve an average of 22 months. His major immediate interest is in making an impact, so he or she brings about all kinds of new innovations from his or her previous experience, usually in the private sector. In this way, BNIs—bold new initiatives—as we used to call them at OMB, are injected into the system.

Then, of course, there are the constraints brought about by external organizations, some of which Admiral Ahern mentioned. Because the profit motive is absent from government activity, OMB, where I served for 3 years, feels it is imperative to apply constraints that will generate behavior that is consistent with the achieving of objectives. As a result, they come into organizations in their small but powerful analytical teams and really have a tremendous impact on the things we do. I am sure you are well aware of that. I had not realized it until I moved to this end from OMB. MBO was one of their approaches. Now, I hear ZBB (Zero-based Budgeting) whispered about these days.

I was amazed at the extent to which Congress involves itself in the most minute details of management of the military and civilian workforce in the Pentagon. In my experience, we invite some of that. We go to Congress and tell them all these terrible problems we are having. Then the staffs of the committees up there—the Authorizations, Appropriations, and Budget Committees—feel constrained to follow our progress in solving these terrible problems that we have told them about. As a result, dozens and dozens of people with only a modest understanding of the management difficulties and motivational problems faced in the Pentagon heavily involve themselves in what we do and how we do it.

The Department of Defense also gets itself involved in management matters of the individual services, and Admiral Ahern had wonderful things to say about that involvement. I won't elaborate anymore on that. Finally, there is GAO—another agency to help us in our management activities.

One of the things that I was heavily involved in during my last 6 months at DoD was the erosion of benefits issue. I think it is going to continue to be a difficult problem for the military, one which will continue to plague the military for years and years to come. I have no reasonable expectation that this is going to stop. It is such an impersonal issue that it is almost impossible for a politician to pass up an opportunity to take a shot at it, along with the issue mentioned earlier—"double dippers."

Questions of Panel

Question: I would like to ask the panelists what you think about the drills to relocate out of Washington. These drills, which are separate and distinct from base closures, seem to put a great deal of strain on our civil servants. I think we are all aware that ordinarily 25 percent, or maybe a maximum of 50 percent of your workforce, moves with the activity. With the disruption of getting started again and the impact on morale, it probably takes 2, 3, or 4 years to recover. It impacts on productivity. It is like erosion of benefits. The workforce is so worried about the rumors, week after week, regarding what is going to happen that they have no motivation for getting on with the job.

Dr. Taylor: I was never involved in the issue of relocation out of Washington. I must say that it makes good political sense. While I can see the disruption that it causes, developing a political center of support somewhere outside the Washington area is an important thing for any military organization to do. Also, military personnel are moving all the time, and I doubt whether they have much sympathy for civil servants complaining about having to move once in their career. I think, particularly at the higher level, that there is too much immobility. I always thought there ought to be much more mobility, and I'm not speaking now of GS-5s, -7s, or -9s so much as I am of GS-11s. I think it is a healthy thing for people to be exposed to new environments, to be exposed to different problems around the country. If someone wants to accept responsibility, they should be willing to accept the discomforts that are associated with mobility.

RADM Ahern: Some relocations out of Washington are clearly and solely political moves, having nothing to do with reducing costs or increasing efficiency. However, the Navy has never had a master plan with which to counter these political pressures. I am very proud of our new Secretary of the Navy, building a shipbuilding plan and then fighting for it and sticking with it. I think we need the same thing with our basic structure. It's really our fault that we do not have a 10-year plan. If we did, we could lay it right out in the open, and for every letter that comes from Congress, the response would include a copy of the plan. Then you wouldn't have to write a very long letter, just simply, "Pursuant to your question, the enclosed plan is attached." If we included in such a plan the goal of getting down to a reasonable capacity level, taking our

far-flung and rather uneconomical base structure and consolidating it, then we could say that our plan either includes these units leaving Washington or it does not. So I say that we bring some of this Congressional pressure on ourselves. I do not know of the existence of a real, hard, good common sense plan for restructuring the Navy as to its physical or geographic location.

Mr. Paz: I have a bias I want to share with you on those drills. Let's face it. Any move to relocate out of Washington is politically motivated. I have not yet seen one move based on good planning in terms of the way we want to deploy our Navy organizations. When these relocations have occurred, there has been considerable disruption to the civilian employees of those organizations. I feel very strongly that there ought to be mobility among our executives and the career people entering our executive levels. One of the problems in our civilian workforce is that most people start their careers in one place and end them there. Consequently, their view of the Navy is very narrow and that is wrong. If we are going to be a member of the team, we ought to consider mobility, and there ought to be provisions for mobility. But, to get back to your basic question, I think we are going to continue to go through these drills as long as our friends in the Congress are concerned with micromanagement. I really don't see any significant change in that kind of an attitude.

Question: I want to make a comment on something Mr. Paz said in his presentation. He was talking about commanding officers of organizations who, because of their background, were relatively inexperienced in such things as labor negotiations and relations, and I assume that was in reference to the overall Navy. However, in the Navy industrial complex, there is a group of military people trained in such matters, and they are in the naval shipyards. The naval shipyard commander, for instance, comes up a very different route. He is an individual who is trained and motivated as an industrial manager. He spends many years gaining background in shipyards and shipbuilding in order to become the shipyard commander. I wonder if we don't see something you didn't mention—perhaps a little more efficient operation of the naval shipyards than the average naval station.

Mr. Paz: I should have mentioned exceptions being in the naval shipyards, the Supply Corps, and the Civil Engineering Corps. I was using Captain Kay's article as a basis for addressing the problems that I encounter when we have a new commanding officer, coming fresh from the fleet, to run a shore activity. We seem to consider running a naval base or naval station as equivalent to running a deep draft vessel command. In such cases, you would have problems. I want to add that, in conjunction with the Bureau of Naval Personnel and with the Chief of Naval Education and Training, we hope to get hold of this problem by instituting a Prospective Commanding Officer's Course. Our first course offering is in May, where we plan to run seminars not only on personnel management but also on financial and facilities management.

Question: We have a declining fleet. We are down to 465 ships or something like that, as compared to several thousand a few years ago. The perception in the field is that headquarters never gets smaller. While we have gone from 2,000 ships to 500 ships, and while the field activities get smaller, the headquarters organizations continue to swell. It is difficult for people in the field to understand why we cannot cut down in headquarters. How can the organization perpetuate on itself, what keeps it running? Where does the work come from? The other aspect to this issue is the centralization of headquarters. It appears to me that the Army and the Air Force have always done it differently. They are slimmer in Washington, and they have had their activities such as logistics commands outside of Washington.

Answer from audience: When you look at what the headquarters does, you find that much of it is in developing, buying, and acquiring new ships, aircraft, etc. The Navy has twice as many major acquisition programs as the Army or Air Force, and this is where most of our headquarters workforce is. The workforce is not involved in the fleet and its maintenance as much as it is in this acquisitions of weapons systems, and we have a few problems there, such as shipbuilding claims and a few other things. Maybe we don't have as large a force as we ought to have to handle these problems. In other words, the growth has been in the acquisition side. In terms of constant dollars, there has been a 27 percent increase in procurement R&D and in that portion of the O&M account that is managed by the headquarters of the three Navy hardware commands.

Question: Do you see the pay disparity between white collar and blue collar civil servants as a problem, and, if so, what are you doing to try to solve it?

Mr. Paz: This has been a very real problem. It is running rampant on the West Coast, and it is gaining a foothold on the East Coast. It is going to be a real problem that all federal agencies will have to face. We are facing it now, our blue collar labor brought in at Grade One is making more money than our white collar GS-5 Trainee Engineer. We have posed the problem to the House Post Office and Civil Service Committee, chaired by Gladys Spellman. We had ADM Weber and Secretary White from OSD testifying, and we have laid it out to the Congress. I believe that it is going to be one of the pawns that will be used in the negotiations to get the President's Civil Service reform bill passed. Will a solution be here today or this year? My answer to that is, probably not. We will have to continue to live and deal with that very unsatisfying way of running the business, but it is one of those political realities we face.

Question: I have been thinking about the remarks that were made earlier about the size of headquarters, and I wonder whether the perception that headquarters has remained at its preexisting size is really correct. The Air Force has testified, before the various committees of the Congress, that the size of its headquarters has diminished by 50 percent since 1968, whereas the size of the total Air Force has diminished by 34 percent. So I

wonder whether it is a correct perception that the size of headquarters, whether they are located in Washington or elsewhere (and there is a very explicit definition of headquarters in DoD directives) is really a correct one. I think that my colleagues from both Army and Navy have testified before the various committees of the Congress who are interested in the size of headquarters, most notably the House Appropriations Committee, that there has been a substantive reduction of headquarters. It seems to me that the reduction of headquarters size is in some measure a result of redefinition of functions. Those functions have not changed, nor has the location of the people performing them changed, but they are no longer counted as part of headquarters. While some of that has resulted in an apparent reduction in size, I also think there has been a real reduction. The best example I could think of is that we used to have a headquarters structure in the Air Staff close to 6,000 people, and the number now is substantially below 4,000. I don't know what the numbers are for Navy, but I understand the Army numbers have been similarly reduced.

RADM Ahern: I would like to comment only to say that it is like the equation of $Y = A + BX$, where A is the constant, and it keeps changing. We recently reduced the headquarters by 20 percent, yet not one billet was abolished. What you must do is define what headquarters does; that is, are they headquarters in the sense of policy, command and control of resources?

Unless you go back and define what you mean by this definition of headquarters, it does not mean anything to just count personnel. I think the original perception is correct. We certainly haven't reduced headquarters jobs as much as we have those in the field activities.

BGEN Johns: We have abolished some headquarters jobs in the Army, and we have created a lot of field operating agencies to take care of other headquarters functions, which is a shell game. However, we also must remember that headquarters must make uniform policy, pay and compensation policy, etc. Regardless of whether the force of the Army is 1½ million or 800,000, the same number of people is required to make these policies. You simply cannot reduce the headquarters at the same rate as you do the field force.

RELEVANT MILITARY RESEARCH ON PRODUCTIVITY AND MOTIVATION

Dr. Richard Elster, Scientific Advisor to the Chief of Naval Personnel

What I want to do today is to review R&D issues and projects concerning motivation and productivity and then to relate those R&D issues and projects to six major problem areas within DoD. These problem areas are:

1. Size, mix, and cost of the total force.
2. Factors related to productivity and motivation.
3. Obtaining required personnel.
4. Keeping required personnel.
5. Organizational functioning.
6. Substituting personnel for personnel, and capital for personnel.

First, then, I will deal with the size and mix and cost of the total force. A breakdown of DoD manpower costs projected for FY79, which appeared in the March 1978 issue of *Retired Officer Magazine,* shows that 55 percent, for a total of $63.7 billion, will be for personnel. That percentage is fairly representative, or even a little lower than it has been in recent years.

What about the size and mix of personnel? It is a large force obviously. At the end of FY78, the number of civilians was over 1 million, and the number of active duty personnel, 2.1 million, resulting in a total force of about 3.1 million. Since the number of civilians includes about 125,000 foreign nationals, we can see that the total force is a fairly heterogeneous group. Also, we have the reserves, which total about 1.4 million, and an estimated 2 million contract personnel working to provide DoD with goods and services. They come from organizations such as Lockheed, Grumman, General Motors, and so on.

I want to look now at productivity and motivation from the points of view of the economist and the behavioral scientist. These two models are different but complementary, and they provide an overview of productivity and motivation. Economists see resource problems as ones of resource allocation; that is, mission capabilities, such as the ability to control sea lanes or to destroy a certain number of tanks, are primarily a function of capital and labor inputs. Thus, the problem is simple. It can be solved by optimal allocation of resources among capital-labor inputs, and by trading off different capital and labor mixes—that is, by substituting one sort of input for another. For example, you can trade off capital for labor. You might be able to substitute a major piece of hardware for a large number of people, or to substitute a few highly skilled people for a larger number of lower skilled personnel.

The behavioral scientist views productivity as a function of a large, complex set of variables. The most proximal factor is the employee's job performance, and next, ability and motivation. So you see how closely productivity and motivation are related. More distally related variables are technological development, education and training, pay and benefits, the formal organization, leadership, etc.

Let's look next at obtaining the required personnel and the problems associated with that. This slide (see Figure 6) shows the trend in U.S. demography. Along the vertical axis, we have population in estimated thousands of U.S. males ages 17 to 21. You notice that, in 1978, we are at something of a peak in the numbers of those people. Beginning in 1991, there are three projections based on three assumptions about how many children the typical woman will have during her entire lifetime. In the cohort of women born in 1940, each has had 2.72 children to date. If predictions are made using cross-sectional data, we get an estimate of 2.1 children. In any case, you can see that we are going down to a minimum in this 17-21 age cohort somewhere around 1991. Whether or not it will be based on 2.1 or 2.7 children per woman depends on whether you are optimistic or pessimistic, but 2.1 is probably a better estimate. Please keep in mind that not all of these people are going to enlist. We are in a volunteer force environment. Things such as unemployment make an enormous difference in enlistment propensity. Survey data right now would indicate that the propensity to enlist in the military has dropped off about 1% from even last year.

A number of proposals have been made that are intended to help us cope with the decline in the number of males of prime military recruiting age. These proposals include improving attrition and retention; recruiting women and "older" individuals; substituting civilians; providing for lateral entry; reducing physical, mental, or moral standards; returning to the draft; increasing incentives; increasing the recruiting budget; imposing training efficiencies; extending ready reserve obligation; substituting capital for labor; "shaping-up" the U.S. educational system; redesigning jobs and organizations; and improving leadership and management practices. Imposing training efficiencies has been a favorite one recently, and there have been large cuts in training budgets.

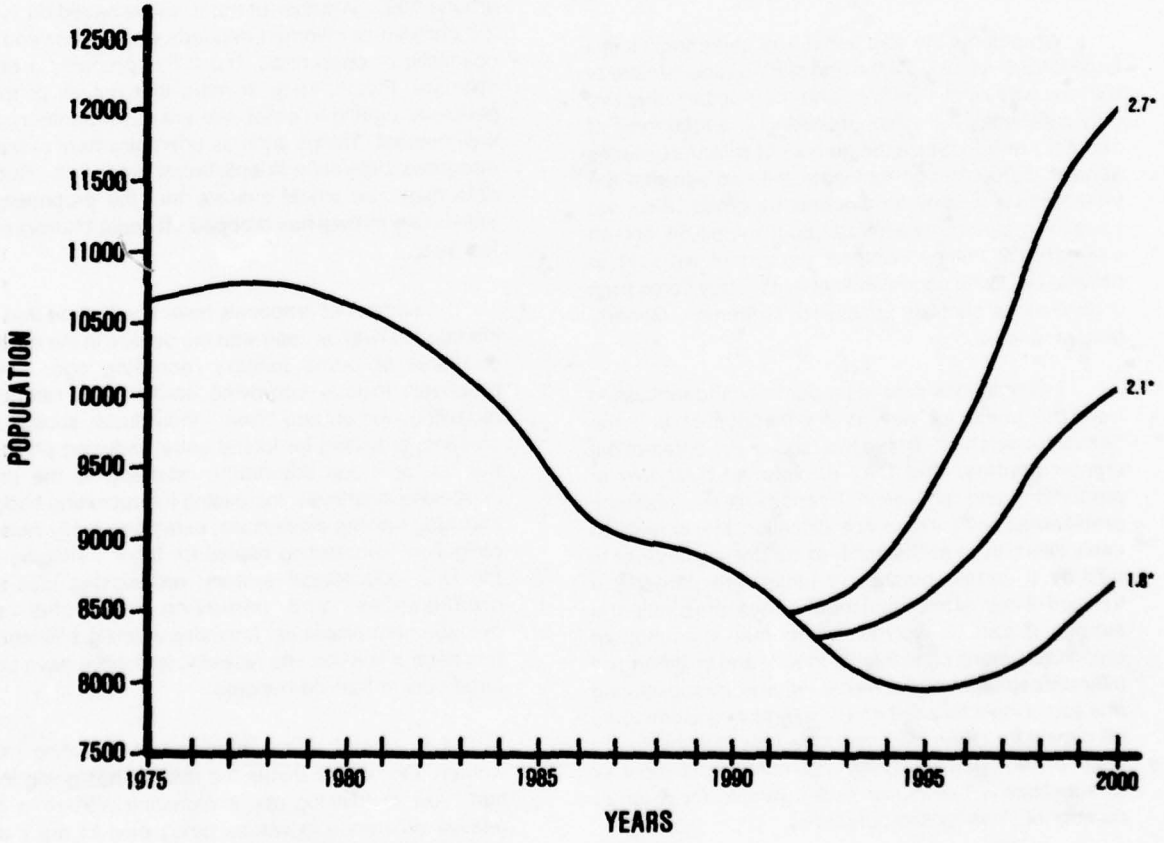
Let us look at the proposal of recruiting more women. One of the things the military has going for it right now in thinking about recruiting women is the relative difference in wages being paid to male and female civilians. We're talking about fulltime employees—people who have at least a high school degree but are not college graduates. Male and female military enlisted of the same rate get the same pay

regardless of sex. Furthermore, in the private sector, the pay for female civilians does not increase as much as it does for male civilians. Right now the gap between the wages being paid to military enlisted personnel and those being paid to female civilians—both in the 18-24 year group—averages about $1,300 a year. We know that relative wages make a difference in recruiting. As I recall, a 1 percent change in relative wages will bring a 1 percent increase in enlistment of male high school graduates. I don't know what the estimate is for female high school graduates.

Another way to counter potential recruiting shortages and demographic declines would be to reduce physical standards. The Congressional Budget Office estimates that, of the 10.6 million U.S. males aged 17 to 21 in FY 1977, 4.8 million or 45 percent are qualified for military service; another 1.4 million or 13 percent are already in or veterans of service (active and reserve); and the remaining 4.4 million or 42 percent are not considered qualified for service. The latter group includes 1.1 million classified as Mental Category IV or V and 3.3 million who are physically disqualified. People at DoD feel this 42 percent is just too high. In particular, it might be wise to consider lightening physical entrance requirements in the military.

Another problem that has been noticed by the services—and picked up in the news media—is that the quality of those in the recruitable pool appears to have declined. For example, scores obtained on the Scholastic Aptitude Test (SAT), which measures people who are college bound, the cream of the crop, are declining. From 1963 to 1977, the mean score obtained on the verbal test declined 49 points, and that for the quantitative part declined 32 points. About two-thirds of the decline occurring from 1963 to 1970 and one-fourth of the decline from 1970 to 1977 can be explained by a compositional change in the people taking the test. For the rest, you can blame your favorite whipping boy: the family, schools, TV, etc.

This decline in quality is particularly serious in view of the increase in volume and complexity of technical material used in the services. For example, in 1939, technical manuals for a typical aircraft included about 525 pages. In 1975, the technical manuals associated with the F-14 Tom Cat included over 300,000 pages. And I'm sure a typical page from a 1939 manual would not look like a typical page from the 1975 F-14 technical manual. So the difference is not only quantitative.



* AVERAGE NUMBER OF LIFETIME BIRTHS PER WOMEN, I.E., COMPLETED COHORT FERTILITY
SOURCE: U. S. BUREAU OF CENSUS, OCTOBER 1975, TABLES 7-9, pp. 41-118

Figure 6. Estimate (in thousands) of U.S. male population age 17 to 21, including Armed Forces overseas–1975 to 2000.

Another proposal for getting more people into the service is to use incentives. For example, in a study conducted by Dr. Ralph Canter of the Army Research Institute (1977), high school males who were interested in enlisting in the service were asked what sort of incentive it would take to get them to enlist. It is interesting to note that those with higher abilities, as measured by their high school grades, tended to endorse educational benefits as enlistment incentives; and those with lower abilities, monetary bonuses. It is important to remember, however, that these are survey data and not direct indications of behavior.

The next major topic I would like to cover is keeping required personnel. There has been a lot of press on this also. Why do we want to keep them in anyway? I think this question can be answered by looking at a study conducted by Robert Gay of the RAND Corporation (Cooper, 1977), which measured on-job productivity of first-term enlisted personnel over that term. A productivity index of 100 was assigned to the typical serviceman at the end of 4 years. Results showed that, at the 1-year point, persons in a high-skilled specialty are about 40 percent as productive as the 4-year specialists; and persons in a low-skilled position are about 60 percent as efficient as those who had been in for 4 years.

Let's look at some first-term attrition data for voluntary (not drafted) enlisted personnel. These data are from the Secretary of Defense and were presented at a conference on first-term enlisted attrition sponsored by ONR about a year ago. These data show that the percent of male attrites during the first 2 years of what would be a 4-year enlistment has been increasing (from 20.7% for 1971 accessions to 29.1% for 1974 accessions); and the percent of female attrites has been decreasing (from 40.8% for 1971 accessions to 28.7% for 1974 accessions). For males, the primary reason for attrition was failure to meet minimum behavioral or performance criteria. For females, the two major reasons were the failure to meet minimum behavioral or performance criteria and marriage/pregnancy. Selection psychologists seem to be still at the same state-of-the-art that they were about 17 years ago in predicting first-term attrition from preservice variables—the correlations run about 0.28, as I recall. High school graduation is the best predictor of whether or not the individual will make it through the entire term. One last note: the typical female enlisted person is of higher quality than the male, at least to the extent that quality is measured by a preenlistment test and by high school graduation status.

R&D on attrition has also been conducted at the Navy Personnel Research and Development Center. For example, in one study, cohorts entering the Navy in July 1977 (N = 4,911) were asked, on the fourth day of recruit training, to indicate their general attitudes toward the Navy. The data collected were separated according to whether or not they attrited from recruit training (there were 428 attrites). Analyses of these data showed that 37.2 and 55.5 percent of attrites and nonattrites respectively were "generally satisfied with the Navy" on the fourth day, compared with 35.5 and 11.4 percent of the two groups who said they were "sorry I joined the Navy." Much of this dissatisfaction is blamed on the recruiter: 77.1 and 69.4 percent of the attrites and nonattrites respectively agreed that "There were a lot of things I wish my recruiter would have told me that he did not."

Bill Mobley, who is doing some work for the Office of Naval Research, has data on Marine Corps recruits that are comparable. Apparently we are turning them off quickly. It appears that interventions are needed early—perhaps in the recruiting process. Mobley and his colleagues also reviewed the R&D done on military enlistment and attrition (Hand, Griffeth, & Mobley, 1977). Using the studies they identified, I aggregated the number of studies that used different types of variables to predict attrition and retention. I found, for example, that there were at least 12 studies using demographic variables to predict attrition. The major point is that attrition research is highly unidisciplinary, almost unipredictor, rather than multivariate in approach.

I want to look briefly at retention trends for pilots and naval flight officers (NFOs). It has been suggested that naval pilots and NFOs resign for the following reasons:

1. Insufficient flying time.
2. Working wives.
3. Separation from family.
4. Poor medical care for families.
5. Erosion of benefits.
6. Uniform and haircut regulations.
7. Generation gap between senior and junior officers.

These reasons tend to appear in all sorts of attrition research, even for personnel assigned to submarines (except for "insufficient flying time"). Thus, if these reasons are valid; that is, if they in fact account for resignation among naval aviators, it would appear that retention rates for pilots and NFOs would be similar. However, a look at the resignation rates for these people indicates that the rate for NFOs to date has been rather constant while the pilot rate has begun to increase sharply. To determine why the two rates differ, let us compare the salaries of the typical naval pilot and the commercial airline pilot. The naval pilot's salary (which includes his regular military compensation and flight pay) compares favorably with that of the airline pilot, until both groups reach about age 30. After that, the airline pilot's salary begins to exceed that of the naval pilot, and the gap increases significantly from then on. At the age of 46, the typical naval pilot is earning about $34,000 annually, and the typical airline pilot, about $50,000.

So now we see why the pilot retention rate is starting to go down. It turns out that civilian airlines and

business have started hiring, and they are expected to hire about 6,000 pilots a year for the next 6 years. Historically, 75 percent of airline pilots have been trained by the military; 25 percent, by the Navy. The point of all this is that economics makes a great difference in retention.

Moving right along—to research on organizational functioning. Tomorrow you are going to hear from Dr. David Bowers, who has done a lot of work over the years in both the Navy and the civilian sector. I apologize here for ignoring the excellent work being done by the Army in their organizational effectiveness program; unfortunately, I was unable to find any evaluation data on this program, but it is probably the best organization development program in the military sector.

Dr. Bowers has been involved with the University of Michigan Model of Organization Functioning. The basic assumption of this model is that the organization is made up of work groups, and, within each group, you have four dimensions: managerial leadership, peer leadership, group process, and group outputs. Further, all work groups are influenced by organizational climate, which consists of outputs of surrounding groups, practices which indicate that the organization feels people are important, the level at which decisions are made, etc. The Michigan group has developed the *Survey of Organizations* (SOO), which is used to sample or measure organizational climate and the four dimensions listed above.

The Navy has adapted the SOO for use in its organizational development program, which lies within the broader human resource management (HRM) effort. The adapted SOO, which is known as the HRM Survey, includes five major dimensions: command climate, supervisory leadership, peer leadership, work group processes, and outcome measures. It is administered during the HRM Availability Cycle of the HRM effort. The cycle includes the following steps:

1. A presurvey visit to the ship by people from an HRM center or detachment. These are officers and enlisted personnel who are trained in this sort of intervention process.

2. Administration of the HRM Survey to all shipboard personnel.

3. Survey feedback, where the ship's Commanding Officer and the HRM personnel determine what will be included in a five-day HRM workshop.

4. Five-day workshop is conducted, which includes the development of a Command Action Plan (CAP) to resolve problems identified.

5. Command Action Plan is instituted.

A number of ships have participated in the HRM Availability Cycle. To determine how the program impacted on shipboard personnel, pre- and post-measurements were taken on both experimental (those undergoing the Cycle) and control ships. (A total of 103 ships were included in this study.) Results showed that the ratings for the experimental ships had improved for overall personnel, and equipment readiness. Equipment/supplies ratings and training ratings were unchanged.

The HRM Survey dimensions have also been positively correlated with refresher training performance, nonjudicial punishment rates, first-term enlistment rates, total reenlistment rates, and overall readiness ratings.

Next, let's look at job redesign. The Air Force seems to be miles ahead in this. In fact, in attendance at this conference are some people who helped to give birth to what the Air Force has been doing in orthodox job enrichment, which means they used the Herzberg two-factor job redesign model. A cost-benefit analysis of 29 orthodox job enrichment projects done at Hill AFB shows that, by July 1976, the total costs were $540 thousand and the total benefits were $1,752 thousand. The Air Force is now looking at the entire air logistics command. This means that as many as 100,000 positions, most of which are civilian, would be investigated for job enrichment interventions. Also, the Air Force has successfully applied such interventions to enlisted security policemen at Ellsworth Air Force Base, and has also looked at other Air Force enlisted jobs.

In addition, there is the work on job redesign by LTCOL Dennis Umstot, who is now at the Air Force Institute of Technology. Figure 7 shows his modification or elaboration of the Hackman/Oldham model of job redesign. Basically, what Umstot has added here is task goal structure: when goals are made specific and employees understand what is involved in meeting them, they accept the goals and their productivity increases. Also, Umstot included moderators such as subcultural predisposition and organizational climate. Subcultural predisposition is important because persons in certain subcultures may not want their jobs redesigned.

What is the purpose of job enrichment? Well, as shown in Figure 7, it increases satisfaction; lowers absenteeism, turnover, and costs; enhances performance, etc. Is there any evidence that job redesign might be useful to the Navy? In answering that, let us look at the work being done by Dr. Eric Gunderson of the Navy Health Research Center. He has studied unauthorized absence rates by Navy occupational group (specialty) and education level—high school (HS) graduate or nonhigh school (NHS) graduate. For illustration, I have selected three occupational groups he has studied: (1) Engine and Hull (MM, EN, BT, BR), (2) Aviation (ADM, ADR, ADJ, AM, AMS, AMH, AME), and (3) nonrated (SN, FN, AN). For all groups, the unauthorized absence rate has risen over the years, except that the rate for nonrated personnel who enlisted in 1972 was lower than that for those who enlisted in 1973. Further, NHS graduates had higher rates than HS graduates, and nonrated personnel had higher rates than rated personnel. Perhaps these rates could be decreased in selected occupational groups through job redesign.

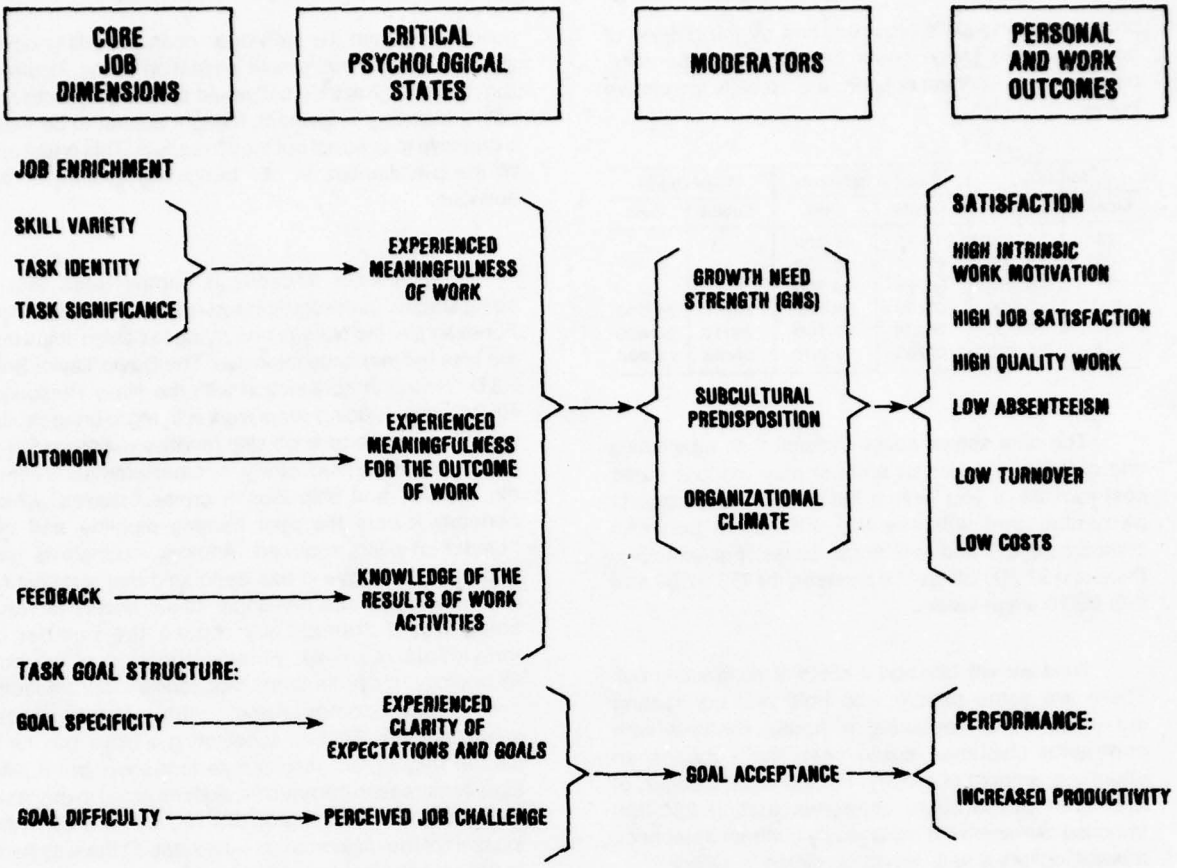


Figure 7. Summary of the Umstot Integrated Model for Job Enrichment.

To carry this point further, the Navy Personnel R&D Center studied the attrition rates of general detail (GENDET) enlisted men who entered the Navy in February 1976. GENDETS are used in unskilled and semiskilled sorts of jobs. The study showed that higher mental level group personnel, as determined by scores obtained on the Navy's entrance tests, have higher attrition rates than do lower mental level group personnel. This indicates that GENDETS at higher mental levels are really being turned off by these jobs, which are not at all mentally demanding. Perhaps job enrichment is one sort of intervention that we could try to keep these people. Another intervention might be to do a better job of assigning people to jobs that fit their qualifications.

Someone has already described the Performance Contingent Reward System experiment, which was conducted by the Navy Personnel R&D Center at the Long Beach Naval Shipyard. Monetary bonuses were awarded for performance that exceeded predetermined standards—the amount of the bonus paid an individual was directly related to the amount by which his/her work exceeded the standards. As a result, there were immediate productivity increases, which, in turn, resulted in a dramatic drop in the amount of overtime required and an achievement of considerable savings overall ($10,000 in 13 weeks with 17 keypunch operators) (Bretton, Dockstader, Nebeker, & Shumate, 1978).

Our last major topic is substitutions; that is, personnel for personnel, and capital for personnel. Here I am relying on information provided by Richard Cooper of the Rand Corporation (1977) and Binkin, Kanter, and Clark of the Brookings Institution (1977). There is a network of laws and regulations (e.g. Public Law 93-365 and DoD Directive 1100.4) surrounding the use of alternative sources of labor—that is, military, in-house civilians, and contractors. As I understand it, as long as there is no preemptive military requirement (e.g., security, combat readiness, etc.), cost becomes the primary criterion for choosing among these three sources of labor.

Binkin, Kanter, and Clark did a study for the Senate Armed Services Committee, in which they compared total annual costs attributable to equivalent grades of selected military and civilian (general schedule and wage grade) personnel. These equivalent grades were determined by the Hay Associates point-count system, which evaluates jobs by know-how,

problem-solving skills required, and by the degree of accountability. These costs include salary benefits, pipeline costs, indirect support, etc. Results are shown below:

Military		General Schedule		Wage Grade	
Grade	Cost	Grade	Cost	Grade	Cost
05	51,200	14/15	46,000	–	–
02	28,700	09/11	22,300	–	–
01	26,600	07/09	20,000	–	–
E-7	26,100	07/09	18,700	09/10	26,000
E-5	19,000	05/07	15,700	08/10	20,400
E-3	14,500	03/05	11,800	05/06	17,400

The data shown above indicate that substituting one category of labor for another may produce some cost savings. If you look at the bottom three rows in particular, you will see the difference between comparable GS and WG wage levels. For example, there is a $7,300 difference between the GS 07/09 and WG 09/10 wage levels.

Next we will talk about costs of contracting out. There are some people who hold that contracting out—that is, by replacing in-house civilians with contractor civilians—could save the services an enormous amount of money. For instance, Cooper, of the Rand Corporation, estimates that, if 250,000 in-house civilians were replaced by contract personnel, a billion dollars a year would be saved in salary.

To illustrate, Rand compared personnel costs at the Reese and Vance Air Force Bases (Binkin et al.). Both bases have the same mission; that is, undergraduate pilot training. However, Reese is operated by Air Force military and civilian personnel, while Vance contracts out many of its support services. Rand concluded that Vance is run more efficiently, and with no decrease in the quality of work: Vance operates with 26 percent fewer people and 13 percent fewer dollars. The main reason for this seems to be—and both Rand and the Brookings Institution agree on this—that fewer supervisory personnel are required if you go with contract personnel.

The Bureau of Naval Personnel (Pers-2) investigated costs of using alternate sources of labor for trainers for E-2 aircraft. The Navy Training Equipment Center estimated that using Navy enlisted personnel for this work could cost $307 thousand and civilian personnel, $312 thousand. A contractor's unsolicited proposal for performing the same service amounted to $238 thousand. According to these figures, use of contractor personnel would definitely be less expensive. However, when individual services figure personnel costs, they don't have to budget for total costs of in-house personnel, such as retirement costs. Military retirement costs appear in the DoD budget but not in those for individual services. Also, as explained by Cooper and others, DoD's 7 percent contribution to civil service retirement, which is then matched by a 7 percent contribution from the individual, does not totally cover the civil service retirement obligation being incurred. Since the contractor's bid would presumably cover all costs, including retirement, it might appear to be more expensive to contract out than it really is. This is just one of the peculiarities in our budgeting system in the services.

Capital-labor tradeoffs is another area that is being studied, particularly in regard to support services. For example, the Navy is now trying to design ships that are less maintenance intensive: The David Taylor Ship R&D Center, in conjunction with the Navy Personnel R&D Center, is doing some work in trying to bring capital improvements to bear on ship facilities maintenance in order to increase productivity. Another example is use of air, ground, and ship launch cruise missiles, which certainly lowers the pilot training pipeline and the number of pilots required. Another example is gas turbine technology—it has been said that substituting gas turbines for the traditional steam boilers in Navy ships would dramatically reduce the number of individuals required. Finally, there is black box technology. It seems to me that capital-labor tradeoffs are often compounded with technological advancements. That is, substituting a black box for a person may in fact increase performance, but it also usually increases the need for skills required to maintain the black box. Also, it probably requires a shift in the location of the maintenance—perhaps all the way back to the person who developed the box. Cooper says that capital-labor tradeoffs are not common in DoD weapon systems, possibly because they are so capital-intensive already. However, he suggests that the support end is ripe for such tradeoffs.

Summing up, then, I have tried to convey the following messages:

1. DoD's total force is large and heterogeneous—and that seems an understatement.

2. The trends in the labor market and the demography in the United States will undoubtedly force some adjustments by the services.

3. Personnel turnover is a problem in some parts of the force, certainly with the first-term enlisted personnel. There is even an impression that perhaps too many officers are getting out at the 20-year point.

4. Organizational interventions are on the increase. We used to feel that, somewhere out there in the population, there is a perfect group of people with the right attitude—if we could only find them. Now, we are actually starting to think about changing the organization, including the jobs, the leadership, the climate, etc.

5. Economic variables are very important. One of the highest correlations I have ever heard about in the social sciences area is that between unemployment rates and voluntary turnover in the labor force—that correlation is −0.84 over 30 or 40 years. Relative wages

also make a difference. Finally, bonuses have been found to influence reenlistment behavior.

6. Substituting in-house personnel with contractor personnel also looks attractive, at least according to studies done by Cooper and the Brookings Institution. The support end seems to be where they particularly want to target their efforts to bring in contractor personnel.

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PART II

APPROACHES TO PROBLEM RESOLUTION

THE IMPACT OF CIVIL SERVICE REFORM ON PRODUCTIVITY AND MOTIVATION

Dr. Alan Campbell, Chairman,
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I am pleased to be invited to participate in this conference because I have been considerably interested in this topic for some years—particularly the relationship between productivity and motivation. I have, in the past, done some work in attempting to measure public sector productivity, particularly at the state and local level, and have often become frustrated by measurement problems. The fact is that we are dealing with a service sector where outputs are not easily defined and where a price system does not exist to assist in measurement.

Despite those difficulties, there is no question that productivity is obviously at the heart of a great many of the issues which face this country. There is no way that I know of that one can accomplish social progress without a growth increment with which to work. To redistribute what everybody already has, I would argue, is politically impossible. On the other hand, it is difficult to maintain economic growth and at the same time preserve the environment.

When you have a public sector that consumes a third of our gross national product, as we do, you can hardly expect that sector not to be a drag on the total economy unless it is able to improve its productivity. So I would suggest that we are dealing with an issue that is at the heart of many of the problems that face this country. I do not think we should be discouraged by the measurement difficulties. I am a hard data man and therefore get uncomfortable with concepts that are difficult to quantify. That does not mean, however, that I do not recognize their importance.

In relation to the federal government, there have been some efforts to examine progress in productivity. The Joint Financial Management Improvement Program attempted in the early 1970's to do that, and I believe it made a useful contribution. In some ways, I have been disappointed that it has not continued and has not had a larger impact on actual operations of departments and agencies.

That study reinforced what we already know: the public sector is heavily service-oriented. Because of that fact, people resources are probably more important in relation to improving productivity than are technology and capital investments. I do not think we should give up trying to find ways to apply capital to improve productivity in the service sector, be it private or public. Nonetheless, if there is to be substantial improvement in the public sector, I would suggest that it will come about through the better use, the greater involvement, of human resources. That requires a kind of in-depth knowledge which, if my quick reading of the literature is correct, indicates that we have a long way to go in understanding the variables involved. The findings seem to be mixed and do not clearly point in the same directions.

Legislation 10%; Implementation 90%

Some things, however, have been learned, and I hope that what we are trying to do in reforming and changing the civil service system of the federal government will establish a framework where new work systems can be tried. Frankly, the new federal personnel management system will create only opportunities, because the suggested reforms would merely create a new institutional system and possible new ways of working. The real test will be the implementation, and that implementation will have to impact not only on the central personnel agency but also on all the departments and agencies. I would guess that, if we accomplish the reforms through Congress that the President has urged, we will have done about 10 percent of the job. The 90 percent implementation task will remain, and will be every bit as difficult and time-consuming as the process of putting it all together has been.

If you examine the current civil service system of the federal government, it becomes evident very quickly that, rather than being an aid to improving productivity and the quality of work life, it acts as a constraint or negative influence on that improvement. Let me summarize those constraints under three headings and then indicate why we feel some of the changes being advocated through the reorganization plan and the legislation will make some contribution to removing those constraints.

Three Constraints

First, there are the myriad regulations which govern all personnel functions. Many of the regulatory aspects of the present personnel system deprive managers of the flexibility they need to best use their employees. Time and again, when managers discuss why productivity gains are not greater, they cite such things as regulations which delay or prevent hiring the most qualified personnel, employment ceilings, rigid job classification, and the like. While the Civil Service Commission may sanction demonstration projects with one hand, it often promulgates regulations which make innovations very difficult with the other.

A second constraint on improving employee productivity has to do with the nature and background of

federal supervisors. In many ways, the present system has allowed the evolution of technical rather than managerial supervision. Supervisors have typically been appointed as a reward for good technical performance. Their subordinates tend to reinforce this technical orientation by seeing them and using them as super-technicians to help solve technical problems. Certainly supervisors must have those skills, but they also need managerial and leadership capabilities which do not automatically come in the same package as technical expertise.

Finally, and perhaps most importantly, the present system constrains the relationship between performance and reward—or perhaps one should say that we lack a relationship between performance and reward. As the President said in his March 2nd address on civil service reform, we have too few rewards for excellence and too few penalties for unsatisfactory work. The rewards which workers value, such as pay increases, promotions, development opportunities, are perceived to result from longevity more than productivity. Federal workers, in responding to recent questionnaires about their work, said they perceived performance as only somewhat likely to lead to rewards, and lack of performance as only slightly more likely to lead to the withholding of rewards or to discipline. The basic performance-reward relationship has died over the years under a system of virtually automatic pay increases and unassailable job tenure. A situation therefore exists in which the civil service system as it currently operates (and perhaps more importantly, as it is perceived to operate, since that is what *controls* behavior) generates constraints in the form of rigid regulations, a technically-oriented supervisory force, and weak performance-reward contingencies. Given these constraints, it comes as no surprise that programs designed to enhance productivity through motivation have been of limited value at best.

It was against this background that, in June 1977, President Carter established the Federal Personnel Management Project to make the most comprehensive review of the federal civil service ever undertaken. The project was staffed almost exclusively by federal career employees, over a hundred of them, who were familiar with the problems of the system. Task forces from the project conducted intensive reviews of personnel management, ranging from labor management relations to pay and benefits. The task force circulated their findings to a wide audience, both inside and outside government, and made their final recommendations in December 1977. If any of you have not seen the final report of that task force, I urge your attention to it, because I believe that it will dominate the literature in federal personnel management for at least the next decade.

While there is a great diversity in the reforms proposed in the civil service system, many would impact directly on motivation and productivity. Before taking a closer look at these productivity-oriented proposals, let us consider some more general features of the proposals being recommended by the President that are now before Congress. They will affect all levels of employees from top managers to the line employee. A substantial number of the reforms will require legislation since the federal sector has much of its basic personnel policy set by law. This, of course, is in sharp contrast to the private sector, where changes are much more easily accomplished.

Reorganization Plan

A general feature of the proposed civil service reform concerns the structure of the Civil Service Commission. Over the years, a sort of functional schizophrenia has developed, with the Commission being charged with both advising management on personnel matters and protecting the individual rights of employees. While these are not necessarily mutually exclusive, they have resulted in serious problems—problems in which managers see the Commission as unduly employee-oriented and employees seeing it as unduly management-oriented, and other concerns in terms of conflicting loyalties within the institution.

Thus, the President has proposed a reorganization of the present Commission, which would abolish it in its current form and establish, in its place, two separate agencies. One would be the Office of Personnel Management, responsible for managing human resources and performing somewhat the same functions for personnel as OMB performs in the financial area. There are some who have suggested that perhaps I am attempting to steal *the M out* of OMB and put it in the new Office of Personnel Management. I jokingly respond that I do not think it is serious to steal something that is essentially unused. The other agency would be the Merit Systems Protection Board, which would be genuinely independent, made that way by bipartisan composition. Its members would be appointed to 7-year terms, could be removed only for cause, and would be ineligible for reappointment. The Office of Personnel Management would develop personnel policies governing civilian employment and provide leadership and assistance to federal agencies carrying out those policies. Further, its creation would mark a reorientation of the central personnel function from being a regulatory agency to being a service-oriented agency.

In my judgment, one of the most important parts in the new legislation concerns research and demonstration. It will give authority to the central personnel agencies, for the first time, to undertake major efforts in research, development, and field demonstrations.

Many of the proposed changes in the civil service directed toward improving productivity focus on the relationship between supervisor and subordinates. Put most simply, these reforms will help supervisors motivate their employees to produce, while also creating a supportive environment at higher levels in their organizations.

Improved Supervision

Let me turn now to some of the specific proposals in the legislation which I believe have some relevance to productivity and motivation issues. Perhaps the most basic tool which must be given supervisors is appropriate training in effective personnel management. As mentioned, under the present system, there is little systematic appraisal, selection, and development of supervisors and managers. Their initial selection is too often based on technical competence rather than managerial potential. Further, there are virtually no rewards or sanctions for agencies to systematically develop effective supervisors. The current Civil Service Commission guidelines for supervisory training have typically been interpreted to mean that 40 to 80 hours of such training must be provided. The content of that training ranges from 10-year-old classroom lectures to courses obtained under contract that were originally designed for the private sector. In response, we propose that agencies be required to design and implement systematic procedures for selecting and developing employees for supervisory and managerial positions. These procedures will be based on agency goals and designed, with the Office of Personnel Management's assistance, according to standards and guidelines established by that agency.

I would point out too that, in the proposed legislation, we are recommending that the first appointment to a supervisory position be probationary. This provides two advantages: First, the person will have a year to decide whether he or she wishes to be a supervisor; second, the agency management has a chance to find out whether the capability is there.

Improved Staffing

Assuming that supervisors have been adequately trained in effective management, they still need appropriate staff. To this end, a second set of recommendations was made which focused on staffing systems. Anyone who has experience with federal civil service knows that the hiring process is fraught with red tape and delay. The Civil Service Commission is considered a bottleneck because its requirements affect all personnel actions. We also are convenient whipping boys to agencies and department personnel offices who do not do their job as well as they might. I just had a call from a friend who has been waiting 90 days to be officially appointed to his position, and he was angry at the Commission because we had been so slow to act. I called the personnel office in the agency he was scheduled to work for, and found they had not yet delivered the papers for us to act on. That kind of role for the central personnel agency leads to many of the antagonisms which exist, and it certainly does not serve the purposes of the institution.

The regulations are cumbersome and result in agencies relying on their internal personnel specialists to circumvent the system to get the people they need. The time it takes to hire and the restrictions on managers in selecting qualified employees are not the only problems. Promotions and adjustments in the workforce have also become too complicated. While the specific proposals to unravel this knot of regulations are very detailed, our fundamental approach uses two strategies: streamlining and decentralizing.

The complex personnel system will be greatly simplified for recruitment, examination, selection, staffing, and promoting. Personnel management authority will be decentralized to levels as near as possible to agency program operations. The Office of Personnel Management will provide guidelines for all personnel management, but agencies will be given greater authority to make personnel decisions on their own which they believe will contribute to their productivity. Further, these decisions will be placed with people at the working level, as opposed to the personnel technicians, to allow line managers to tailor practical solutions to their own needs. In doing that, they are going to need the help and support of their personnel people.

Incentives and Sanctions

After supervisors have been trained to be effective managers and provided with qualified, appropriate employees, they will still need more flexibility with regard to incentives and sanctions. Looking first at positive incentives, the Personnel Management Project found that these are presently available in various forms but are not being used properly. There are now incentive awards systems which could be used with much more impact. Unfortunately, they have become enmeshed in too much red tape.

Another area for positive incentives concerns employee development and training. Aside from its own value in correcting skill deficiencies, developmental experience can be a powerful motivator. We propose that these positive incentives be made available without dense layers of approval. Increasing supervisors' autonomy will do a great deal to strengthen the performance-reward contingency which is so important to individual motivation.

On the other side of the incentive coin, supervisors need to be given more flexibility in the use of negative incentives. By now the entire country must be aware of the horror stories about the federal employee who apparently cannot be fired. While the whole thing is greatly exaggerated, it unfortunately remains basically true. We propose to streamline the entire disciplinary process. Presently these processes are so lengthy and complicated that it is usually easier for supervisors to tolerate or even promote their problem employees to another office rather than deal with them. Basically, streamlining requires simplifying the appeals procedures. This must be done while simultaneously providing appropriate employee protections. We believe that, through the Merit Systems Protection

Board, and other changes in the appeals process, we will be able to accomplish that.

Meaningful Evaluation

Closely related to the use of positive and negative incentives is evaluation. The current performance rating system set by law in 1950 is applied neither consistently nor effectively and is often seen as useless or even counterproductive by both employees and management. Supervisors must be given performance appraisal tools and standards that are meaningful and applicable. Without them, it is impossible to adequately rank employees, which must be done if rewards and penalties are to be equitably distributed. Therefore, we propose that agencies develop performance criteria at the level that the work is being carried out rather than push for more highly standardized methodologies which quickly degenerate into *pro forma* exercises producing little variation, if any. We also propose that agencies develop performance appraisal systems that can tie more closely to the pay systems in effect for their employees. We would require that performance appraisal be used as a basis for developing, rewarding, assigning, demoting, promoting, retaining, or firing employees.

Finally, there is at least one additional tool supervisors need to more effectively manage their employees in terms of motivation and productivity. That tool is a measure of productivity itself. We suggest that agencies be authorized and required to develop productivity indices suitable to their needs, with an emphasis on developing them at the lowest feasible working level.

In summary then, to meet the challenge of increasing individual motivation and productivity, the Office of Personnel Management will have to provide federal supervisors with several fundamental, yet important management tools. These include supervisory training and development, adequate personnel, positive and negative incentives and the flexibility to use them, effective performance appraisal techniques, and meaningful productivity measures. It is important to recognize, however, that supplying these tools does not guarantee their use.

Merit Pay

Moving on to some more specific aspects of the legislation, perhaps the most fundamental and I believe potentially the most far-reaching proposal, concerns the introduction of a more meaningful merit pay system. Presently, middle managers and indeed all career employees are regularly rewarded for little more than longevity, through a system of periodic increases in pay. While these increases are not automatic according to regulation, in practice they are granted in over 98 percent of the cases. This tends, in my judgment, to foster mediocre performance. Moreover, supervisors who attempt to exercise their authority to withhold these increases as a penalty for poor performance face involved grievance procedures, union action, and frequently lack of support from higher management.

To rectify this problem, we propose initially a merit pay system for middle management. Under such a system, managers will be given broad discretion to reward their subordinate managers based on their overall performance. Thus, job performance, not time in the job, will determine pay adjustments. The successful implementation of such a merit system will require a substantial investment in developing better managerial performance appraisal systems and in training managers to use them. In the beginning, this merit pay system will cover grades 13 through 15 and will be introduced gradually, assuming we get the authority to do so. It certainly is our hope that we will be able to extend it further as, over time, people become accustomed to its use. If a merit pay system can be developed and used effectively with middle management, it might be adopted for a wider range of professional and administrative positions.

Employee Development

In terms of employee development, some of the specific proposals should help to motivate supervisors to use one particular supervisory tool mentioned earlier; namely, employee development. We propose that, as part of an overall employee development policy, there be a strong recognition of managerial responsibility and the primary role supervisors must play in developing their subordinates. This development can be provided using a variety of approaches, and federal managers will be required to systematically plan, implement, and evaluate employee development. As a means of more specifically motivating managers to undertake this responsibility, agencies will be required to evaluate supervisors in terms of the effectiveness with which they plan and implement systems for developing their employees.

One other proposal which I have already mentioned, but which I think deserves mentioning again, relates to the probationary year when a person is appointed to his first supervisory position. It is difficult, as you are aware, to predict effective supervisory performance from past technical performance. Yet, once career employees have been placed in supervisory jobs, they can be removed only through formal proceedings. This can often prove problematic, both from the point of view of the agency which feels stuck with an ineffective supervisor, and from the point of view of the new supervisor who may come to regret this career change. Under the present system, both parties are more or less forced to live with the situation. To solve this problem and to motivate good performance, the legislation will state that the supervisor's initial employment is for a probationary period. It could range from 3 months to 1 year, at the discretion of the agency, and would provide a means for testing new supervisors and for weeding out ineffective ones more quickly, easily, and acceptably.

We propose that greater use be made of other approaches for improving the quality of working life for federal employees. Such approaches would certainly include job redesign, bonus pay plans, and flexible working hours. Management must be encouraged and assisted to experiment with these techniques. This recommendation is not meant to pay lip service to a current movement which is in vogue. Rather, it recognizes the realities that must be faced in managing and motivating a changing workforce which indeed has changing values. Increased attention must be given to creating working conditions which foster individual growth and responsibility.

Senior Executive Service

Finally, the Personnel Management Project made four proposals that will help top level management to develop and maintain a climate of strong organizational support for the other proposed changes already discussed. The first recommendation, and in my judgment the most important part of the legislation, concerns the nature of that top level management. We propose the creation of a whole new personnel management structure for selecting, developing, and managing top federal executives. This Senior Executive Service would include managers who direct the work of their organizational units and are held accountable for program success, goal setting, and goal achievement. Several key features of this proposed service will do much, we believe, toward building the necessary top level support for other management and supervisory reforms. A system of accountability for organizational performance will be established that will be linked with both the compensation and tenure of these top level executives. Performance will earn substantial bonuses, up to 20 percent of base salary in any given year. Poor performance will mean removal from the Executive Service. We further propose a shift from the current rank-in-position system to a rank-in-person system. Such a system is used in the military, and would contribute to mobility among executive positions, which is severely lacking in the present system. More flexibility in assigning executives would be encouraged. With these systems, the Senior Executive Service can be developed, we believe, into an effective cadre of top talent to provide the necessary leadership for a responsive, efficient government.

Productivity Measurement

In a quite different area but also of tremendous importance is the already mentioned problem of productivity measurement. While more valid meaningful measures of productivity have been cited as important for all levels of management, they are particularly vital for top management. Historically, the whole issue of measuring productivity in the federal sector has been challenging and frustrating. For many of the functions of government, notions of bottomline performance remain hazy at best. In many areas of public service, one must wrestle with the question of where to measure performance. For example, in regulatory agencies, what should be measured? Is there an analogue to consumer satisfaction? Should performance be considered in terms of the entities being regulated or the public which presumably is somehow served by this regulation? Obviously, these questions have no easy or particularly integrative answers. The Joint Financial Management Improvement Program spent considerable effort in developing measures of federal productivity. By 1975, that program had generated a measurement system of productivity indices which covered 67 percent of the total federal civilian workforce. Unfortunately, these efforts have tended toward producing a single all-purpose, all-encompassing measure of productivity. While this may be an ideal worth maintaining, it has resulted in indices which are so generalized that they have very little meaning. Managers find it difficult to apply the measures and are skeptical of their validity, especially when they are used in making decisions and allocating resources.

We therefore will propose that the Office of Management and Budget provide positive and sustained leadership in developing productivity measurement systems that can be meaningfully used by agency managers at the work level. We will not abandon the concept of the universally applicable system but will not rely exclusively on it. Agencies will be authorized and required to develop productivity indices tailored to their own needs and missions. Further, these measures should be developed at the lowest feasible working level, such as the cost center or field office. If meaningful, valid, trusted productivity indices can be developed, they will be of great use to managers as they plan, budget, and evaluate their operations and any productivity enhancement efforts that they may implement.

I have already pointed out how much significance I attach to the research and demonstration aspects of the act. However, to make it effective, we need the help of the departments and agencies in developing undertakings in this area.

We believe that the reforms in the civil service system which I have tried to outline here briefly will make a difference—but only to the degree that we are capable of taking advantage of the opportunities provided by the new flexibilities created by the legislation. In my judgment, the willingness of the President to make public management improvement one of his four top legislative priorities of this session of Congress is indeed something new. In fact, I would argue that it has never happened before. It creates a particular challenge to those of us who have public management interests. Whether or not we are creative enough, wise enough, and committed enough to take advantage of it remains to be seen.

I will not discuss the politics of getting the measures through Congress but will suggest to you that we have what is a kind of classic case described in

political science textbooks. Public support—that provided by public opinion polls, editorials in major newspapers, and comments of columnists—is not very broad or deep because it is not a matter of everyday current interest to those who give their support. In contrast, opposition is narrow-based but intense, because those opposed have a major interest in it and will generate a great many delay tactics. I would suggest that, if we do not get it through this session of Congress, it will be very difficult to recreate the momentum in the next session. In this kind of situation, it is impossible to predict the outcome, but it is our hope and the President's intent to use all the resources at our command to try and get those measures adopted. It is our judgment that they will make a difference, and we hope, when they are adopted, that you will agree with us.

Question: Dr. Campbell, you did not mention grade determination in your proposals. I was wondering if a reevaluation of the bases for determining supervisor grades was being considered. Quite often the grade of the supervisor is determined by the number of employees supervised. If the supervisor does his job and reduces the number of employees through increased productivity, then he is downgraded. The reverse happens when a supervisor does not do a very good job and requires more employees.

Dr. Campbell: The situation you described is another of the system's *disincentives*. The legislation does not directly address that, but we believe it will provide flexibility to the departments and agencies so that the situation may be directly addressed. Clearly, ways must be found for rewarding managers and supervisors who are able to get the same or improved product by using fewer resources. We are considering a variety of ideas whereby a portion of those resources will go back to that work unit.

Question: Could you address the EEO implications that might be raised by some of the changes, particularly the streamlining of the selection process which has actual line managers making the selection?

Dr. Campbell: There will be a good deal of decentralizing. It will be under guidelines, and there will be requirements that merit system standards be maintained. It is not quite clear to me whether EEO purposes are better served by granting greater flexibility in selection or by tightening selection. At this time, it is my general judgment that the granting of greater flexibility to departments and agencies will encourage the accomplishment of affirmative action goals. In that sense, we believe that a lessening of the rules and regulations will make a contribution.

I would make only one further comment about the EEO situation, and it pertains to a matter in which this Commission has spent a good deal of time and energy. If you examine the representatives of the workforce, you will find that at the top levels, the supergrades, there are 3 percent women and 5 percent minorities. It is a career system, and most people are promoted from within. Therefore, one must look at Grades 13, 14, and 15 to see what things will look like 10 years from now. You find that, in these grades, there are 5 percent women and 5 percent minorities. If you promoted them all, you would improve the percentages at the top of the system by only 2 or 3 percent. That suggests tc me that a concentration on two areas—upward mobility and more attention to hiring from the outside—will be necessary if we are going to accomplish anything. Otherwise we will simply go on using rhetoric about these issues.

Question: You made a few remarks about ceilings. I wonder if you would expand upon your views about ceilings, particularly about high grade controls. At the present time, we have a freeze on all of our high grades, and I know of nothing more demoralizing to our people than having absolute freezes.

Dr. Campbell: The Personnel Management Project looked very hard at the ceiling problem, as has GAO. I think everyone has agreed, including the President, that employee ceilings are an inadequate way of managing, but until we get better, more trustworthy methods of controls on the resource side, there will be no substantial change. We are pleased that we are authorized to develop a full-time equivalent system of counting ceiling points, which I think will help. We also have some authorization for part-time employment experiments which are outside the ceilings. This I believe is the beginning of some changes. There is no question that one of the goals of any personnel management system is to get away from that kind of inflexible control to controls related to outputs and other measures of effectiveness of the agency. There is, I believe, a greater willingness to consider such changes now than there has been in a long time. As you know, presidents, since Truman at least, have imposed employee ceilings. If we can get the new system off the ground, I really think that, during the next 2 or 3 years, we can have some progress in this area.

HUMAN RESOURCES ACCOUNTING FOR THE MILITARY

Dr. David G. Bowers, Institute for Social Research, University of Michigan

A strong argument can be made that human resources are the nation's most important asset. Certainly as more and more of our raw materials and even our energy resources come from abroad, any national "difference" that exists must come to reflect the quality, character, and treatment of those resources. When we consider the large proportion of total expenditures and concerns that military organizations devote to manpower and its related problems, it would appear that the importance of human resources is perhaps greater here than in many parts of our society.

Social systems notions provide us with a convenient and appropriate way of looking at how these resources come to be utilized—for example, by the various Services. In greatly oversimplified form, a Service receives resources from American society in the form of manpower from the civilian population and money appropriated by its Congress. It converts these resources into an output of defense of the nation, which it "exports," in the sense that it makes it visible, present, and useful in the world.

Here, as in any system, not all of the resources received appear at the end of the cycle in the form of output. Some must necessarily be used in the conversion process itself; that is, some proportion must be diverted to maintain the organization. The more that must be so diverted, in relation to a given output delivery, the less effective the organization is. In simpler terms, what organizations—their leaders and key decision-makers—do by way of managing and utilizing human resources determines organizational effectiveness both at any present time and for some period into the future.

If human resources and their effective utilization are critical, and they would appear to be, then the question of why that utilization may not occur requires an answer. Certainly it is not because today's worker is less well prepared, educated, and trained (although it may well be that he is "over prepared"; that is, his job has not grown in ways commensurate with advances in education and training). Nor does it seem that aspirations and desires have diminished—far from it.

Instead, the problem seems to us to lie in the information states and management information systems that guide the ways in which we direct organizations, military or civilian. Some of the more important ones are:

1. **Intrinsic appeal**—To a technology-minded group of managers, for example, new weapons systems are exciting and interesting, whereas new "people" problems are old hat, even annoying. Over time we came to view effectiveness as largely a function of the hardware, with persons necessarily "fastened" at various places thereto.

2. **Persons, not human resources**—A belief is readily arrived at in high-technology settings that, once adequately trained, the performances of whole units or groups of persons are additive—that ten trained persons are worth ten times one trained person—whereas the most reasonable assumption would appear to be that they are not.

3. **Simple management focuses**—Ignoring emergent properties—things like flexibility, coordination, or bureaucracy—in favor of simpler, important, but more limited notions like motivation or morale or leadership.

4. **Faith in direction**—Adhering too much to the belief that effectiveness can be attained (if not guaranteed) by merely (a) demanding particular outputs and (b) manipulating various aspects of the organization's technical and reward systems.

The situation is perhaps most clearly illustrated by what may be termed the "contingency paradox." A rather substantial body of evidence indicates that better cost performance occurs under a more open "participative" management system than under a more rigid, "autocratic," tightly directed one. When the question is posed directly to them, senior managers tend to verify this finding in their experience. Yet, confronted with a need for higher efficiency, managements typically move toward what has been shown to be a *less* cost effective system—the rigid, autocratic one (Likert, 1967).

In a similar vein, Lawrence and Lorsch (1969) have pointed to the importance to organizational structures of the environment in which they occur. More fluid, unpredictable environments require internal flexibility and an ability to coordinate creatively. Stable environments, on the other hand, permit more regimented, structured forms to function with acceptable effectiveness. Yet what we have termed the "contingency paradox" appears to operate here as well. Organizations whose environments become more fluid and less predictable seem to turn toward more rigid, "bureaucratic" ways in their attempts to cope, not toward more flexible ones.

At least one very plausible explanation is that the practice persists because the information systems that service organizational managers and key decision makers are deficient in content and function. These systems commonly provide, largely or exclusively, readings upon events and conditions at the outcome

stage only (e.g., detailed statements of production for the previous month). No indication is given as to what conditions and events led to the reported outcomes, since these systems traditionally do not include information about what the human organization is, how it functions, and how this is related to events at the outcome stage. Secondly, conventional information systems contribute to a time-lag warp in organizational evaluation since they focus almost exclusively upon short-term outcomes and provide little or no data upon the relationship of short-run dollars to the longer-range outcomes of the organization. Without these additional kinds of information, constructive corrective action on the part of management becomes exceedingly difficult. Thus, management oftentimes relies upon conventional practices which provide short-term gains at the sometimes substantial cost of long-run effectiveness or even survival.

An adequate information system, then, needs to include asessments of current human resource management practices and the way in which these are related to the long-run success or failure of an organization. This information would make it possible to assess the impact current management practices are likely to have on *future* effectiveness. In other words, this information—when compiled and presented appropriately—would operate as "future performance trend indicators." Such trend indicators would give management lead time for taking corrective action and would pinpoint specific areas of the human organization to be improved. In addition, the importance of effectively managing human resources would become more obvious to key decision makers, since the state of the human resources would be tied to familiar measures of effectiveness (e.g., retention rates or operating costs).

In recent years, attempts to gather and compile the necessary information have been termed, for simplicity, "Human Resources Accounting" (Hermanson, 1964). To date, three routes or methods have been discussed:

1. **The "Incurred Cost" method**—Measuring the amount already invested in the human organization (Brummet, Pyle & Flamholtz, 1968; Pyle, 1970a, 1970b).

2. **The "Replacement Cost" method**—Estimating the cost of replacing the organization's human resources (Flamholtz, 1969).

3. **The "Current Value" method**—Estimating the future productive potential of today's human resources (Likert, 1967; Likert, Bowers & Norman, 1969; Likert & Bowers, 1973).

All three human resources accounting procedures have the same major purpose: to assess the value of the human organization. They differ from one another in their focuses, however. The Current Value method emphasizes the value of the human organization which is well managed and maintained, whereas the other two approaches emphasize the importance of attracting and retaining valuable human resources. The two latter approaches also focus upon personalized records, whereas the Current Value method is likely to focus instead upon unit-level records. Finally, the Incurred Cost and Replacement Cost methods attempt to assess the total value of the organization's human resources, while the Current Value method is designed primarily to predict *changes* in future productive potential that will result from a human organization which is "better" or "worse" today than it was at a specified time in the past.

For the most part, real-world efforts to develop a system of human resources accounting have employed one of the first two methods cited; that is, a "cost" method. That this is true seems largely attributable to the facts that (1) they have relied for their data upon existing, conventional accounting records and are thus less likely to be unacceptable to the accounting profession, and (2) the volumes of data required for the third (current value) approach have been unavailable to most investigators.

For several years, however, it appeared to a few of us at ISR that there existed enough accumulated, dollar-convertible performance data, paired to enough standardized questionnaire data in our *Survey of Organizations* (SOO) data bank, to make a current value approach feasible. Furthermore, several facts extended the relevance of these data sources to military settings:

1. The same questionnaire instrument had been used in Navy settings as part of manpower research, had formed the basis for the Navy's *Human Resource Management Survey*, and had been found to be related to various Navy performance indicators (Bowers, 1975a; Drexler, 1974; Drexler & Franklin, 1976; Franklin & Drexler, 1976).

2. The same questionnaire instrument had been used in Army settings also (Bowers, 1975b; Franklin & Wessner, 1975; Spencer, 1975).

Accordingly, in 1975 we proposed to and were funded by ONR to undertake an effort to explore the feasibility of developing a full-fledged current value HRA system—a system of future performance trend indicators. Our strategy followed the simple two-step sequence stated by Caplan and Landekich (1974) as required for any such effort:

1. Estimate the amounts and timing of future benefits (i.e., determine the relationship of our survey measures to performance in future time periods).

2. Estimate the present value of those future benefits (i.e., multiply them by a discount factor).

It should be noted that our work is obviously related to earlier efforts to develop a *personnel status index* for the Navy (Dunnette, Milkovich & Motowidlo, 1973; Borman & Dunnette, 1974). Beginning with a conference of scholars drawn from various fields, the investigators set as their task deriving a personnel status measure which was:

1. A single index whose components remain retrievable.

2. On a scale which permits cross-time comparisons and which is evaluative, not merely descriptive.
3. Computable from accessible components.
4. Capable of providing estimates for organizational entities, not just for single individuals.
5. Sensitive to major fluctuations, but resistant to minor ones.
6. Credible to and easily interpreted by a lay audience, and reasonably resistant to fudging.

Using the policy-capturing method with a group of Naval officers drawn from the Naval Postgraduate School, these investigators identified what, in the judgment of those officers, were the most important possible components of a personnel status index. Twenty-nine potential indicators were examined in terms of five criteria, namely, their importance, reliability, generalizibility, accessibility, and fudgeability (and the results were subsequently factor analyzed). A close reading indicates that only nine measures fell in the top third of each array on the five rating criteria. When their factors are reexamined in this light, it seems clear that three components stood out in the officer's minds as important potential performance indicators:

1. **Retention rate,** as measured by reenlistment and stability statistics.

2. **Discipline,** as measured by unauthorized absence rate and rate of less-than-honorable discharges.

3. **Readiness,** as measured by manning level and maintenance ratings.

To these were added a fourth factor whose nature seems more "input" than "output" related, a measure of average aptitude, loading on intelligence test scores, numbers able to pass rating exams, and the like.

Obviously, what is proposed in current value human resources accounting is closely related to this earlier effort. As an index, current value HRA is for the most part consistent with the criteria which they set. In addition, the survey measures have, in the research previously cited, been found to be related to retention rate, to discipline, and to at least some measures of readiness.

A search of the *Survey of Organizations* data bank produced five large data sets which met all of the criteria necessary for inclusion in our proposed research:

1. At least two waves of comparable questionnaire data with sufficient internal consistency reliability.

2. Organizational performance measures across time with each performance period having sufficient internal consistency.

3. Zero-order relationships of survey indexes to performance data adequate to proceed with the necessary multivariate analyses.

In the first phase, we established the size of the relationships across time of SOO indexes to two measures of performance for units in these companies: (1) TVE: *total variable expense* (a ratio of actual dollars spent to engineered standard dollars), and (2) ABS: *total absence* (a ratio of total days absent to total scheduled work days). The analysis design was to split the entire array of 500+ work groups into two random halves, to perform multiple regressions on each half, then to double cross-validate the regressions. The predictors were the following 13 multi-item key indexes from the *Survey of Organizations*:

1. **Organizational Climate**

a. Decision Making Practices—The manner in which decisions are made in the system: whether they are made effectively, made at the right level, and based upon all of the available information.

b. Communication Flow—The extent to which information flows freely in all directions (upward, downward, and laterally) through the organization.

c. Motivational Conditions—The extent to which conditions (people, policies, and procedures) in the organization encourage or discourage effective work.

d. Human Resources Primacy—The extent to which the climate, as reflected in the organization's practices, is one which asserts that people are among the organization's most important assets.

2. **Supervisory Leadership**

a. Supervisory Support—The behavior of a supervisor toward a subordinate which serves to increase the subordinate's feeling of personal worth.

b. Supervisory Work Facilitation—Behavior on the part of the supervisor which removes obstacles which hinder successful task completion, or positively, which provides the means necessary for successful performance.

c. Supervisory Goal Emphasis—Behavior which generates enthusiasm (not pressure) for achieving excellent performance levels.

d. Supervisory Team Building—Behavior which encourages subordinates to develop mutually satisfying interpersonal relationships.

3. **Peer Leadership**

a. Peer Support—Behavior of the subordinates, directed toward one another, which enhances each member's feeling of personal worth.

b. Peer Work Facilitation—Behavior which removes roadblocks to doing a good job.

c. Peer Goal Emphasis—Behavior on the part of subordinates which stimulates enthusiasm for doing a good job.

d. Peer Team Building—Behavior of subordinates toward one another which encourages the development of close, cooperative working relationships.

4. **Satisfaction**—Measure of general satisfaction made up of items tapping satisfaction with pay, with the supervisor, with co-workers (peers), with the organization, with advancement opportunities, and with the job itself.

Our expectation was that, across performance time periods, we would find a "two-hump" pattern like that in Figure 1. This is based upon the belief—suggested by a great deal of our past research—that there is a substantial *lag* in the effects of organizational management. In other words, *today's* performance is only in part tied to today's management practices; it is much more the product of an accumulation of practices from previous periods. Translated into forecasting terms, we would expect closer relationships of today's management practices to *future* performance measures than to *present* ones.

This was, indeed, what resulted, as the summary data in Table 1 indicate. While the rise and fall were not as dramatic as our hypothetical chart depicted them, they were there and followed a pattern very similar to the one hypothesized. The relationships varied around a value of 0.40, peaking at a somewhat higher value 18 months to 2 years *after* the Wave 1 SOO measurement, and 2½ to 3 years after the presumed onset of the organizational conditions measured.

Having established relationships of management practices to performance across time (the first of our two general steps), we were prepared to begin the second: the value attribution process. Although a somewhat complicated procedure, in simple terms this amounted to:

1. *Converting* the *observed* changes from Wave 1 to Wave 2 in survey measurements of management practices to *predicted* changes in performance.

2. *Costing* the predicted performance changes by removing the standard to which they were originally related as a ratio.

3. *Aggregating* these predicted changes to the organizational level.

4. *Discounting* the value back in time from the future (when it is to be realized) to today (to take account of foregone interest during the waiting period).

5. *Capitalizing* the predicted value increment to yield a figure indicating the investment value of the change (i.e., how much we would have had to invest, given today's earnings record, to yield this kind of return).

The results of the discounting are indicated in Tables 2 and 3, where, in each instance, three

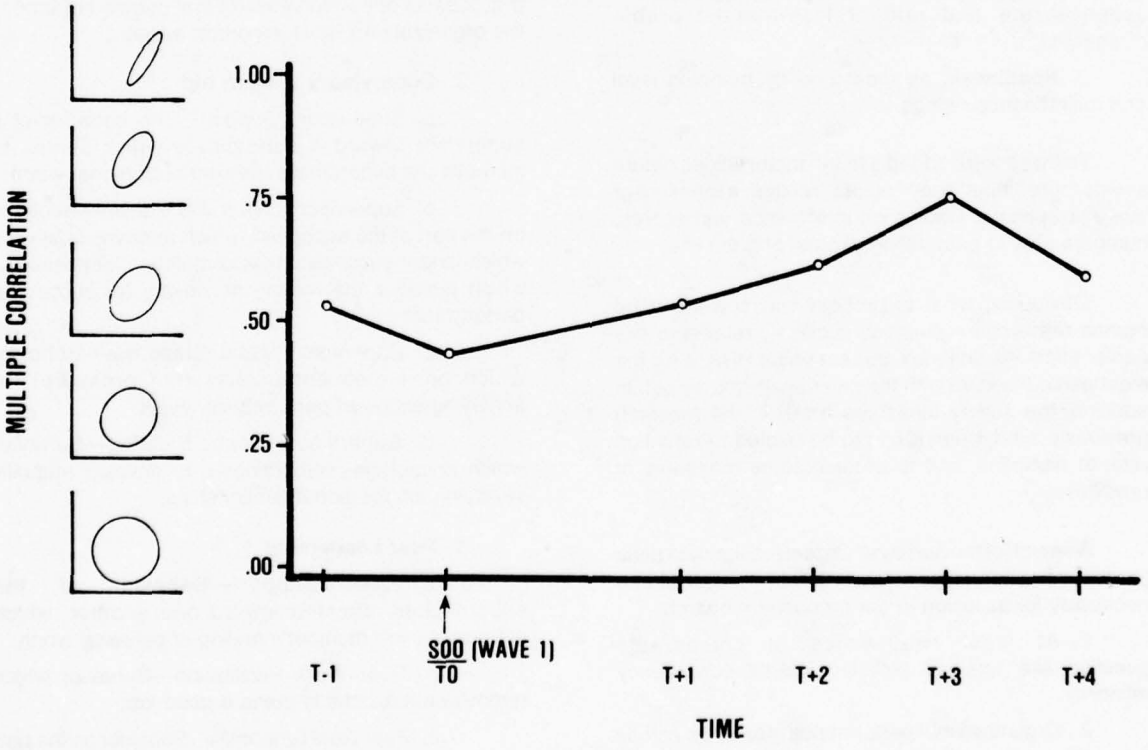

Figure 1. Hypothetical relationship between the human organization and performance.

Table 1
Evidence of Lag Time: Multiple Regression Statistics Across Several Time Spans (Wave 1 *SOO*)

Mean Multiple Regressions (R)		Span 1	Span 2	Span 3	Span 4	Span 5	Span 6	Span 7
Total Variable Expense (TVE)		5 mos. prior to *SOO* Wave 1	6 mos. subsequent to *SOO* Wave 1	Mos. 7 & 8 subsequent to *SOO* Wave 1	Mos. 9–16 subsequent to *SOO* Wave 1	Mos. 17–26 subsequent to *SOO* Wave 1	Mos. 27–31 subsequent to *SOO* Wave 1	Mos. 32–37 subsequent to *SOO* Wave 1
Entire Sample		0.39	0.27	0.40	0.44	0.48	0.41	0.39
Control Organization		0.34	0.34	0.35	0.46	0.48	0.41	0.38
	Span 0	**Span 1**	**Span 2**	**Span 3/4**				
Total Absence (ABS)	Mos. 7–12 prior to *SOO* Wave 1	6 mos. prior to *SOO* Wave 1	6 mos. subsequent to *SOO* Wave 1	Mos. 7–14 subsequent to *SOO* Wave 1				
Entire Sample	0.38	0.33	0.29	0.43				

alternative standards have been taken as the basis for the costing process (representing, roughly: costly, less costly, and least costly operating configurations).[1] The results of this value attribution demonstration do not correspond to what might be expected for any single "real" organization. They are, however, what we might reasonably expect for an organization with the human, technological, and events characteristic of our "composite" organization.

There are some distinct limitations to what we have done, limitations that in many instances would be avoided in any existing organization where current value HRA might be attempted. For one thing, we have lost some potentially valuable variance in our performance measures by having to standardize them *within* companies, in order to attain cross-company comparability. Second, the way in which these already existing data sets were structured led us to establish performance "periods" in a way that may itself have limited the size of our coefficients. Third, some potentially valuable predictors could not be used because they were not present in early versions of the survey. Finally, events that might affect either performance or management practices, or conceivably the relationship between the two, were not adequately documented in the archives containing these data sets. Not having been established with current value HRA in mind, they were not optimally suited to researching it.

Still, the results demonstrate rather conclusively that current value human resources accounting is quite possible in fact, not just in theory. While it is not likely to enter *formal* accounting practice at any time in the forseeable future—not likely, for example, to form a basis for tax reporting or depreciation or dividend payment—it would appear quite useful to the capital budgeting process and as an element in the information systems which guide day-to-day decision making.

Its potential relevance to military organizations is, in our judgment, substantial. Manpower is a costly item—probably the costliest. Its value lies, not in an absence of its being costly, nor even in its simply being "present and accounted for," but in its potential for performance in the future—a purpose precisely encompassed by current value human resources accounting. Brighter, more talented, better trained, and better managed groups perform complex tasks more effectively. In military terms, the likelihood of winning a conflict is greater when you have them than when you do not. And it is precisely this which current value human resources accounting contains as an advantage over many other techniques for valuing organizational outcomes, including cost-based approaches to HRA itself. The latter typically attend to costs associated with acquisition or replacement only, rather than to costs associated with degraded performance of task or mission.

It may have other advantages as well. For example, if a dollar metric can indeed be used, manpower performance problems may be statable in those same terms which guide the resource appropriations process. Cost/benefit calculations which take account of *real* costs, not simply the more obvious ones,and long-range benefits, not just short-term advantage, may be possible. It may also provide a simulation capability, in that the equations stored to provide current value estimates based upon *real* changes could be applied to hypothetical ones as well.

[1] *This procedure is made necessary by the composite nature of the data set.*

Table 2
Present Value of Predicted Changes in TVE

Standard	Total[a,b]	Per Cost Center	Per Work Group	Per Man
Dollar Standard = $20,887				
ORG II	- 2,780	- 185	- 45	-10
ORG III	- 5,160	- 469	- 32	- 4
ORG IV	- 4,886	- 349	- 47	- 5
ORG VI				
Plant 1	- 1,165	- 38	- 24	- 3
Plant 2	- 2,154	- 108	- 57	- 5
Plant 3	- 12,141	- 337	-132	-11
Composite:	- 28,286	- 223	- 56	- 6
Dollar Standard = $55,715				
ORG II	- 7,414	- 494	-120	-27
ORG III	- 13,765	-1,251	- 85	-11
ORG IV	- 13,034	- 931	-125	-13
ORG VI				
Plant 1	- 3,107	- 100	- 63	- 7
Plant 2	- 5,745	- 287	-151	-13
Plant 3	- 32,387	- 900	-352	-29
Composite:	- 75,452	- 594	-149	-17
Dollar Standard = $144,150				
ORG II	- 19,181	-1,279	-309	-69
ORG III	- 35,614	-3,238	-220	-29
ORG IV	- 33,723	-2,409	-324	-34
ORG VI				
Plant 1	- 8,071	- 260	-165	-19
Plant 2	- 14,864	- 743	-391	-35
Plant 3	- 83,793	-2,328	-911	-74
Composite:	-195,246	-1,537	-385	-43

[a] Total of Discounted Values
[b] All figures rounded to nearest dollar

There are, of course, an array of obstacles and possible limitations. For one thing, the dollar metric may have little or no relevance to mission effectiveness, and alternative metrics with the same currency may be hard to find. What is the "cost" of losing a war, for example? It may be, in fact, incalculable, and in any event never statable in dollar terms. For another, it deals in terms of *future probabilities*, not past certainties, and professional accounting practice accepts the latter and dislikes the former intensely.

Still, there is ample evidence to show that the predictors used in this study have approximately the same meaning and construct validity in military organizations, particularly the Navy, that they do in civilian organizations. There is also evidence indicating that these measures predict the performance of military units much as they do that of civilian units and at values that are quite similar. Even the "two-hump" pattern appears to obtain here as there (Franklin & Drexler, 1976). On issue, at least, there is a difference: the cycle appears to operate in the Navy at a higher speed. Instead of a lag of 1½ to 2 years from events to impacts, the same sequence appears to occur in Navy settings within 8 to 12 months.

In the months ahead, the work reported here will be completed. A look at Navy data, necessarily limited, will be taken, and questions of utilization and implementation will be explored. A sizeable, book-length final report will be prepared. But perhaps the most important steps are those that we hope will follow. The results, we believe, warrant a field experimental implementation of a current value system such as the one generated and probed here. Our belief is that such a system will prove to be a valuable tool in guiding military organizations toward improved levels of effectiveness.

Table 3
Present Value of Predicted Changes in ABS

	Total[a,b]	Per Cost Center	Per Work Group	Per Man
Cost = $40				
ORG I	143	14	8	1
ORG II	2,480	165	40	9
ORG III	- 1,460	-133	- 9	- 1
ORG VI				
Plant 2	- 1,521	- 26	- 14	- 1
Plant 3	2,934	82	32	3
Composite:	3,576	39	10	1
Cost = $80				
ORG I	284	28	15	2
ORG II	4,961	331	80	18
ORG III	- 2,918	-265	- 18	- 2
ORG VI				
Plant 2	- 1,042	- 52	- 27	- 2
Plant 3	5,864	163	64	5
Composite:	7,149	78	19	2
Cost = $120				
ORG I	426	43	22	3
ORG II	7,442	496	120	27
ORG III	- 4,377	-397	- 27	- 4
ORG VI				
Plant 2	- 1,563	- 78	- 41	- 4
Plant 3	8,796	244	96	8
Composite:	10,724	117	29	3

[a] Total of Discounted Values
[b] All figures rounded to nearest dollar

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WAYS OF DEALING WITH MOTIVATION AND PRODUCTIVITY PROBLEMS IN THE MILITARY SECTOR: PANEL DISCUSSION

Panel Moderator: ***Dr. Laurie Broedling, Navy Personnel Research and Development Center***

Panel Members: ***Dr. H. Weston Clarke, Vice President for Human Resources, AT&T***
CAPT A.T. Eyler, USN, Bureau of Naval Personnel
Mr. Jack I. Posner, Associate Director, Organization and Management, General Research Corporation
Dr. Brian Usilaner, Assistant Director, General Accounting Office

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Dr. Broedling: Today is devoted to solutions or approaches to improving productivity through work motivation, both long-term and short-term. That is also the particular theme of this panel. We hope that the planning document generated as a result of this conference will include a balance between short-term solutions and long-term R&D initiatives that we should undertake so that we can develop methods for use several years from now. Many of us are convinced that there are things that could be implemented right now that are available state-of-the-art technology. At the very least, we could try some of these technologies.

One of our particular frustrations in the R&D community is the difficulty in getting organizations to try some of these things on an experimental basis. Consequently, the research that we have done has been restricted to descriptive kinds of research. In the process of this research, we have identified many motivational problems and generated recommendations for solution of those problems. However, we can never be quite sure about the effectiveness of our proposed solutions unless we get a chance to try them out on an experimental basis—to see whether or not they will improve organizational performance. My perception has been that everybody is interested in seeing these technologies tried out but in somebody else's organization. Consequently, one of the issues we should face at this conference is a recognition of the rewards and punishments that are discouraging people from trying these innovative techniques.

Our first speaker today will be Dr. H. Weston Clarke, Vice President for Human Resources, AT&T.

Dr. Clarke: This whole topic of motivation and productivity is a fascinating one, and one which we have been working with at AT&T for a long time. I am going to talk about one narrow area pertaining to this topic. At AT&T we are currently restructuring our work systems to improve productivity and motivation. This may be surprising to you because productivity in the Bell System is the highest it has ever been. We are, and have been for some 10 years, increasing at roughly double the national average of productivity. I will not get into the argument of how we measure it, but both management and labor unions agree that it is about a doubling process.

I think the work that we are doing at AT&T is relevant to your situation in the military because so many of our problems are similar. We are both large bureaucratic organizations controlled by regulations and standardized practices. It is as difficult for our individual employees as it is for yours to identify with overall objectives, such as earnings per share or, in your case, global strategies for military intervention. We both function with elaborate systems of performance measurements and controls, and, as most of your know, we are the largest nongovernmental employer—having just under a million employees.

We share another common aspect; that is, the ever-growing portion of our costs is manpower costs or people costs. I saw in the *New York Times* this morning an article which said that military manpower costs are swallowing up an increasing share of the defense budget. This year about half of the Defense Department's outlay will go for the 2.1 million servicemen and civilians. I can tell you that we have been above that 50 percent mark for some time, even though we are known as a capital-intensive organization of high technology. Let's look at that ever escalating cost. We are talking now in the neighborhood of $25,000 to have somebody on the payroll. We think, by 1980, that amount is going to be $30,000, and we need to find some way of getting it under control. Therefore, much of our efforts are directed toward better utilization of our human resources.

I know that one purpose of this conference is to identify productivity problems caused by motivation; however, let me start out by telling you that, in the Bell System, we feel that motivation is not really the root cause of performance problems; rather, we feel such problems are due to something that is created by the work system. Since I use the word "work system" in the broadest sense, I will deal with improvements in the whole work system which we believe can increase productivity and motivation, rather than just with those

that would increase motivation alone. I will tell you some of the techniques we are using, known as work and organization design processes, and I will tell you how we are implementing these processes in the Bell System, however tortuously. I will also suggest to you some parallels that might be effective in the military sector.

First, I will begin with a couple of definitions. I believe motivation can be best described as a person's internally generated efforts to meet organizational goals or to move toward some object. Productivity can be defined as producing more units of work with the same or fewer resources, including people, dollars, and material.

It makes sense that an increase in motivation would lead to an increase in productivity. The difficulty is in knowing how to increase the individual's internally generated efforts. We don't believe that this can be done in a direct fashion. Rather, we believe that motivation, or the lack of it, is an outcome from a person's work system. That is, the work system first creates the environment for increased motivation, and then increased motivation results in productivity improvements.

The work system that I have been talking about includes many factors, the work itself being the core of the system. It includes the methods, the equipment, the ancillary aids that are used by the individuals, the organization structure, and finally the personnel selection, training, and evaluation systems. The global concept is what I am talking about here. As you will see when I get into our diagnostic description, we are looking for indications not only of work design problems but also of all of the other areas where we need to do work, whether it is in training, job aids, or whatever.

In general, I know this is a subject of some controversy, we feel that management by direction and control—whether it is implemented by a hard approach, a soft approach, or a firm and fair approach—fails under today's conditions to effectively motivate human efforts toward organization objectives. We think it fails because direction and controls are useless methods when you are dealing with people whose physiological and safety needs are largely met through union contract negotiations and through the wage structure. The paramount needs of these people seem to concern such factors as achievement, recognition, responsibility, and advancement.

Consequently, we have found that an effective way of enhancing motivation is by dealing with the work itself. If managers want the work and personal outcomes they say are necessary (i.e., high quality performance, low absence, low turnover, high internal work motivation), they must design jobs that create three psychological states or conditions that we feel are critical in affecting employees' motivation on the job. First, employees have to experience meaningfulness; that is, they must perceive the work as generally challenging, important, valuable and worthwhile. Second, they have to experience responsibility; that is, they must feel personally responsible and accountable for the results of the work that they perform. Finally, they have to be aware of what they have done; that is, they must be able to obtain accurate and complete information on a regular basis on how effectively they are performing the job. To state it another way, our studies show that employees are motivated when they are aware that they are performing effectively, when they personally experience responsibility, and when they have performed well on a challenging job—one that they care about and feel is meaningful. These internal rewards reinforce employee behavior and serve as incentives to continue to perform well in the future. The net result is a self-perpetuating cycle of positive work motivation powered by self-generated reward systems.

We think these critical psychological states can be obtained by giving the individual a piece of work which has certain characteristics. First, it must have functional completeness; that is, it must be a complete piece of work with an identifiable beginning and end. Second is the need for consistent situations; that is, the individual must have a consistent relationship with a specific client, a user, a geographic area, or a type of equipment. Third, the individual must have some power to act in the situation; that is, an ability to make decisions concerning his or her work functions. Fourth, feedback, that is, specific information about how well or poorly the individual is performing, must be provided. Fifth, the job must require certain knowledge and skills; people must know what to do and how to do it. Sixth, the job must be in a supportive work environment; that is, policies, practices, measurement, plans, procedures, staff support, communications, and management behavior must all support that work system.

What procedures help bring this work situation about? First of all, one must identify the need; that is, conduct a broad preliminary analysis to specify any current work and organizational problems. Second, a diagnostic procedure must be undertaken in which preliminary problem statements from the needs identification phase are examined in depth to determine their causes and their impact on the organization. Then the actual work redesign is undertaken, based on the action plan developed from the diagnostic phase. As the work is redesigned, procedures are prepared and training is developed. All of those other ancillary systems that we talked about may or may not be modified at the same time. Then comes implementation when the new designs are put into operation. Six to 12 months later, we evaluate. Finally, we recycle back to see if we have a need to redesign anything in that work system. This is a continuing process as new needs emerge.

Let me elaborate on these procedures; that is, the diagnostic or performance analysis phase which we think is the heart of the system. It involves a detailed analysis of the work presently being performed by management and non-management people in the group being looked at. This analysis is designed to identify performance problems, to determine their causes, and then to develop cost-effective solutions. The diagnostic phase produces a report that includes functional flow charts, functional identification forms describing each

function, and problem-cause statements containing the specifications and analysis of all identified problems. The primary data-gathering methods used are written questionnaires and personal interviews. The data gathering process has been designed so that solutions to performance problems may be addressed regardless of the kind of problem or cause that is involved. The outputs, which are the flow charts, the function identification forms, and problem-cause statements, are easily analyzed by experts who identify redundant work, unneeded functions, and required functions not presently performed.

I don't have time to go into the details of the other phases, but let me highlight the output from the design phase; that is, a redesigned job with personnel assignments, the number of jobs, and organizational levels involved. Here we tie closely to our management job-evaluation system, and propose new support systems that may require measurement plans, employee development plans, and implementation schedules.

How are we trying to implement this process through the Bell System? I said we have been working on it for some time. First of all, I have asked the presidents of all the operating telephone companies to establish an internal work and organization design capability—not necessarily in our human resources department. We have tried very hard not to make this a personnel activity or human resources activity. What we have tried to do is to develop role models or success models in each of our functional departments, with an in-house capability within that staff department, both at AT&T headquarters and in each of the operating companies. Then they can turn to our HRD experts if they need further support. As these units have become established, my staff provides them with the skills, knowledge, and training they need to assist the managers to analyze and restructure their work. It is important that the managers themselves be the driving force behind the restructuring. We had some very unfortunate experiences in earlier concepts of this where we promised huge productivity gains to the presidents if they would implement it. They went back and said to their subordinates, everyone will have one of these in 6 months. It didn't work. People resented it, and we didn't have the internal commitment, the driving force that I was talking about.

What does this all suggest to you? I think that work structure problems are so complex and so persistent that an external consultant by himself can play only a limited role in helping managers solve them. An outside consultant, and this includes my HRD kind of staff, can be useful as a diagnostician, as a provider of tools and techniques, as an educator and expert in the design of the work process. In fact, we find these people are essential to successful implementation. However, constant reliance on external consultants should be a warning signal that something is missing in the managers' own resources for maintaining the health of their organization. In the final analysis, the capacity for work and organization design must reside in the organization itself. Thus, education for all managers as well as human resources specialists is a vital component of the whole system.

In summary, we have found in our studies that productivity can be improved through improvements in the work structure. Some of these improvements are direct; that is, similar work flows are related, redundant tasks are eliminated, and paperwork is streamlined to fit the task involved. Other improvements are more indirect, and we attribute them to increased motivation. People get excited and turned on about doing the work when it is structured the way I have described it. The productivity improvements we have had show up as significant force reductions. I will not take you through a litany of the kinds of experiments and the kinds of studies that we have done, but I can assure you that, wherever we have done work restructuring, we have obtained significant reductions in personnel, either by level, by individuals, or by a combination of both level and individuals at a given level.

Dr. Broedling: Our next speaker is CAPT Tise Eyler from the Bureau of Naval Personnel. He works in the Human Resource Management System on the policy and program development level. He is here to describe what the Navy has in the way of an internal organization development program.

CAPT Eyler: I want to describe the Navy's Human Resources Management Support System (HRMSS) and how it could help solve motivation-productivity problems. I am not sure that solving motivational and productivity problems was the original intent of the total system. I am not totally confident that all of these problems are being solved now, but we do have good indications that there is some strong positive movement in that direction.

The system has a number of different components. One is equal opportunity, where we have people who are trained in an awareness of equal opportunity and who are able to assist commands in identifying EO problems and helping to develop action plans. These people are trained through the Defense Race Relations Institute in Florida.

A second component is the control and prevention of drug and alcohol abuse. Let me focus just quickly on the alcohol abuse aspect from a motivation-productivity standpoint. If you can take people, rehabilitate them, and put them back on the job in a productive way instead of having to go through the cost of replacement and retraining, I think some significant progress has been achieved. The Navy Alcohol Rehabilitation Program has made some significant progress. It is modeled after the AA way of doing business, and I think it is successful because it works entirely within the Navy. The person is identified as an alcohol abuser on the job by the people in his command; the pathway to assistance is provided by the command; the place the person goes for rehabilitation is within the Navy system. The attitude at the Alcohol Rehabilitation Center is one which is very positive: it is that, when you come through that door, you are going to be rehabilitated—and you will go back to a job within the Navy. I think that is one of the reasons why the program has worked so well

Overseas diplomacy is a third component. I think this one is poorly named. Diplomacy is generally referred to when we talk about the State Department, so we have trouble explaining what is really meant by that term. It really means overseas duty preparation. People come into the Navy because they see a recruiting poster; they want to go out there and see the world and be a part of the organization at sea in the world. If they go to those foreign ports, and they don't have a good experience and don't learn how to become good tourists, then they are disappointed and frustrated. We see the results of that disappointment, particularly in those cases where our people have embarrassed the United States by behaving inappropriately in a foreign country. The point is that we want to equip our sailors to go ashore, to learn about other cultures, to go beyond Joe's American Bar at the wharf, to ride the streetcars and buses, and to meet the people. The other half of the Overseas Diplomacy program concerns the people that are actually stationed in foreign countries. We want to help them in making a cultural transition to conditions prevalent in those countries. I think it is very unfortunate when a family is sent overseas and just stays aboard the base, never going out of the gate, never really finding out what the country is about. So, the focus of this overseas diplomacy program is to help shipboard and squadron personnel to be better tourists and also to help people who are living in a country for 2 or 3 years have a good experience. If they do not ask to be returned early and they don't succumb to drug or alcohol abuse, then they are serving as more productive and more highly motivated individuals.

The fourth component is leadership and management training. OP-01, who is the Chief of Naval Operations representative in the field of human resource management, sponsors leadership and management training in the Navy. Right now the leadership and management training program is very inconsistent. You will find at least 150 to 160 different courses and course variations being taught. For example, at the Naval Academy, I was taught how to do right face, left face, about face, but I was never really taught much about the real principles and skills that went into leadership. I had to learn about those principles and develop those skills on the job. We think we can do better than that. We have taken this leadership and management sponsorship role, and we are now trying to tie together a consistent program that goes across a person's career, both officer or enlisted, providing exposure to and training in those leadership skills which effective leaders have demonstrated make the difference in their jobs. The program is not funded yet, but we are optimistic that it will be.

The fifth component is human resource management, which is organization development in its broadest sense. There are 14 HRM centers and detachments worldwide. They are in principal points of fleet concentration—Pearl Harbor, San Diego, Norfolk, London, and Washington. The Washington HRM Center supports the shore establishment. The HRM centers report individually to the commander-in-chief of the various fleets. For example, HRMC Pearl Harbor and San Diego report to the Commander-in-Chief of the Pacific Fleet. There are also detachments in Yokusuka, Japan and Subic Bay in the Philippines. In the Mediterranean area, we have detachments in Rome and Naples. There are also detachments in Alameda and Whidbey Island. The people of Whidbey Island also serve the station up at Adak, Alaska.

The centers and detachments provide assistance through an integrated step-by-step process quite similar to the one that Dr. Clarke described. It is a nine-step process that includes information gathering, information analysis, diagnosis, action planning, action implementation, and a follow-up review of progress and results of actions implemented. The process may be repeated to refine the action plan. This cycle is applied over the command training cycle or the tour of the commanding officer, which may be 18 to 24 months. There are roughly 6 to 8 weeks of time involvement with the command initially to gather the information, to analyze it, to report it back to the unit, and to identify the human resource utilization problems that need to be addressed in order to make the unit function more effectively. In the follow-up, a resurvey is conducted to determine if there has been any improvement, and to identify "log jams" that have developed as a result of trying to implement specific actions. The specialists from HRM centers and detachments work for the commanding officer to help break these "log jams" and to assist in developing a better program to move the plan of action ahead.

For the survey, we utilize a version of the Survey of Organizations, which has been adapted to the Navy. The survey measures the relationships between people in the organization, including how supervisors function, what kind of peer relationships exist, what kind of climate is being developed within the command and within individual work groups by the interrelationships among people, and what kind of processes exist—for example, how they make decisions. I think it is a very powerful tool. We have trained our people at the HRM school in Memphis in a 12-week curriculum in the basic concepts of behavioral science and organizational psychology so that they can assist the fleet through the utilization of this survey.

I would like to talk now about some of the weaknesses of the HRM system or areas which I feel need strengthening. One of the weaknesses is that the HRM Support System is not really understood by the commanding officers whom it serves. Many believe that it pertains to social action and has nothing to do with leadership and management. It takes awhile for the consultant team initially to break through that misunderstanding so that maximum benefits can be realized.

Number two is the training of our HRM consultants. I believe we are currently at a plateau in terms of effectiveness. What we are doing is complex. I don't think that any other system other than the Navy has ever undertaken such an operation; that is, to actually train internal consultants to the degree that we are trying to train them. We are finding that, in most

cases, it takes a very high degree of skill and ability to integrate data concerning a command's organizational effectiveness and then to present this information in an understandable form to stimulate effective action. It is difficult, first, to find people to do that, and, second, to train them to do it.

In closing, I would like to relate some of my own personal experience with motivation and productivity. I worked at the HRM Center at Pearl Harbor from 1973 to 1975 helping to get this program in operation. I was in the first class to be trained as a specialist, and it was certainly a great experience for me. After 2 years of working at the Center as a team leader and also as the operations officer, I went to a carrier where I was the Weapons Department Head. Here was an opportunity for practical application of the lessons I had learned. When I arrived, the carrier was in shipyard overhaul up in Bremerton, Washington. During overhaul, the ship is torn apart, all the paint is removed, it gathers rust for a year, and then it is repainted. The engineering plant is dismantled; the passageways are blocked with large metal conduit cables. Tubes pump air into the spaces so the men will not suffocate. Those men over 4 feet tall end up with a bent back trying to walk around and duck under the miles of cables. Superimposed on top of that are 100 to 200 jackhammers that are constantly pounding away at the metal bulkhead. Trying to work at your desk with noise suppressors on your ears is very difficult. Also, it is dirty—and both the sailors and the yard workers wear green coveralls that absorb dirt, grit, and oil very quickly.

There I was, a Weapons Department Head. Most of my people, some 350, were non-high school graduates. There they were—dirty, working all the time, going down into what looked like a coal mine, and being referred to (when I got there) as "dirt balls." While that term probably fit pretty well, it was certainly a deterrent to the development of their self esteem. Motivation and productivity were low.

We had a certain number of key jobs to complete. In other words, completion of the yard overhaul would be documented when all of the key jobs were completed. Therefore, a definite measurement of productivity existed. When I arrived on the scene, we were very much behind schedule. I looked around and it didn't take long to realize that self-esteem was at rock bottom due to the "dirt ball" image, which was constantly being reinforced verbally by supervisors. Some organizational weaknesses were also apparent. I took a look at the largest division in the department—165 people, with only one division officer—a junior officer who was the newest ensign on board and who had very little experience with people—and no assistant division officer. After looking at that situation and at the jobs being done, I met with the officers in the department. We redefined the division in terms of the types of functional jobs being accomplished. For example, these 165 people were being split up haphazardly every day to accomplish tasks and were being assigned to various supervisors who didn't know them. They would go off and do a job one day, come back and go off with another group the next day. It is very difficult to effect good, solid team building when people don't know each other or for whom they are working. So, out of that 165 persons, we developed four functional divisions, gave each individual a permanent division and a permanent leader, and impressed on the leaders that they had to display solid leadership, including, among other things, the elimination of demeaning language such as "dirt ball." These simple corrections really worked. The production curve zoomed up, and at the end of the yard period, we had completed 98 percent of our programmed work. In the past, I think a carrier was likely to complete only 80 to 83 percent of the work designated for ship's force. I felt very good about that. To summarize, the basic organizational framework wasn't there to provide support for the people to do the job, and self-esteem was not there because of the way people were being referred to. Many were non-high school graduates with a history of failure, so being called a "dirt ball" and failing to complete assigned tasks were natural outcomes. Reversing this trend, through the action planning process utilized by HRM teams, is certainly indicative of what can be done throughout the whole system. HRM does contribute to increased motivation and productivity.

Dr. Broedling: Our next speaker is Mr. Jack I. Posner, Associate Director, Organization and Management, General Research Corporation.

Mr. Posner: In presentations as Air Force Manpower Director, before the Appropriations and Armed Services Committees and Subcommittees of the United States Senate and House of Representatives, in support of the President's Budget for successive Fiscal years culminating in FY 1978, I advised the Congress that:

> First, the Air Force Manpower Program reflects the strategy and corresponding force structure to deal with the threat to our National Security . . . the essentially stable manpower levels we are requesting in the President's FY 78 Budget terminate a decade long downward trend in active force manpower levels. The strength requested is 34 percent below FY 68 levels (peak Southeast Asia) and 31 percent below FY 64 (pre-Southeast Asia hostilities). Not since before the Korean War has the Nation had a smaller Air Force . . . .
>
> Second, this program contains improvements in our combat capability within the stable manpower levels requested. *We intend to use resources freed through productivity enhancing technological advances and management initiatives to make essential improvements in Air Force Readiness.* (Emphasis Added)[2]

[2]*Senate Hearings, on H.R. 7933 before the Committee on Appropriations, DoD Appropriations Fiscal Year 1978, 95th Congress, 1st Session, Part 2–Defense Manpower, 1977, page 577.*

Thus, the Air Force postured itself to meet the threat to national security by establishing the "objective of incrementally increasing readiness through the remainder of the decade and into the 1980s . . ." and to "pursue this goal by directing into combat-enhancing activities, those resources freed through productivity improving technological advances and management initiatives." In one sense, productivity enhancement in the Air Force takes on a somewhat different dimension and complexion than improved productivity goals in the private sector viewed on a national scale. In the latter context, this country has historically employed advancements in the means and techniques of production to improve worker productivity by replacing manual labor. Throughout that national process, the aggregate labor force continued to grow. Conversely, Air Force manpower has been successively and measurably reduced in each of the last 10 years, while the air component firepower needs of the National Defense followed a different trend directly proportional to the magnitude of the threat. Absent vigorous offsetting manpower actions by the Armed Services, the inevitable result could be a compromise to unacceptable levels of risk, of United States military capabilities. No alert observer of the contemporary national defense scene is unaware of the incessant annual debate accompanying the effort to rationalize acceptable annual levels of "prudent" security risk for the country, based upon available manpower, materiel, and dollar resources.

The *most productive* employment of annually diminishing resources, both materiel and manpower, has become a matter of overriding consequence within the Air Force. If anything, the fiscal, economic, and human pressures which led Senators Javits, Percy, and Nunn to cosponsor the legislation which became the National Productivity and Quality of Working Life Act of 1975 (Public Law 94-136) are substantively magnified for Air Force managers. Fluctuation in the severity of economic escalation and inflation has tended to diminish even further the real purchasing power of the fiscal resources available to the Military Departments.

In an environment of eroding resource availability, the Public Law 94-136 Congressional perception that "since 1965, the rate of productivity growth of the United States has been lower than that of many industrial nations in the world" has been at least of equally compelling concern for the Air Force manager. And, in that environment, the Department pounced with a vengeance upon the relatively small, but very significant $6.5 million funding provided in the FY 1977 Department of Defense Appropriation Act for discretionary productivity-enhancing capital investments. This progressive departure from prevailing prior practice by the Executive and Legislative Branches represented the kind of bold, innovative action needed to attain essential productivity improvement objectives in the Federal sector.

It concurrently accorded fully with the associated objective of providing greater participation in job structuring and composition to today's individual workers who bring to their jobs higher expectations for work satisfaction than their predecessors. Air Force implementation of its $6.5 million "Fast Payback Capital Investment Program" (FASCAP) responded directly to that individual worker need. Indeed, FASCAP was wholly and directly responsive to the Congressional finding in Public Law 94-136 that:

> Factors affecting the growth of productivity in the economy include not only the status of technology and the techniques of management but also the role of the worker in the production process and the conditions of his working life.
>
> There is a national need to identify and encourage appropriate application of capital in sectors of American economic activity in order to improve productivity.
>
> There is a national need to identify and encourage appropriate application of technology in all sectors of American economic activity in order to improve productivity.

Unfortunately, the self-same Congress, in addressing the FY 78 Department of Defense Appropriations Act, effectively reversed the bold and innovative productivity-enhancing capital investment discretion it had extended to the Armed Services the year before. The Air Force was denied any extension of its FASCAP funding into FY 1978, as were the other services. The Congress declared its intent to return to its traditional practice of formal assessment, authorization, and appropriation of capital investments by the Department. There appeared to be, with respect to initiatives like FASCAP, a general unwillingness to allow the essential measure of discretion to Armed Services managers. I mounted a special effort on behalf of the Air Force to seek reinstatement of FASCAP funding. We were aided in this effort by the National Center for Productivity and Quality of Working Life; and there was sympathetic interest and support in various sectors of the Legislative and Executive Branches. Unfortunately, the relative stature of this issue and its associated funding did not command the attention accorded major weapons system issues then under debate. And, in my view, Armed Services and Defense proponents of discretionary productivity enhancing capital investments were not as timely as they might have been in communicating to their counterparts in Congress the proven virtues of fast payback, capital investment programs designed to enhance productivity. To demonstrate those virtues, the Air Force did vigorously attempt to communicate to Congress their FASCAP ground rules and to demonstrate examples of effectiveness. In Hearings on March 15, 1978, before the Senate Armed Services Subcommittee on Manpower & Personnel, the Program was again firmly supported by the Air Force Assistant Secretary (Manpower, Reserve and Installations). Table 4 contains selected examples of the effectiveness of the program.

And, happily, for FY 1979, the Department of Defense and the Administration have reemphasized to

Table 4

Air Force "FASCAP" Results

Base	Work Center	Item	Cost		Manpower	Payback Within 2 Years[a]		
			To Buy	To Maint.		O&M	In Months[b]	Rate[c]
10 Bases	Civil Engineer	10 High Pressure Washers	$ 242,852	$ 4,000	10 WGB ($255,020)		23.23	1.05 to
Eglin FL	Crypto Eq Maint	Halycon Test System	5,766			$ 16,800	8.24	2.91 to
McClellan CA	Ops Support	Microfilm Enlarger and Printer	33,250	8,400		66,844	13.65	2.01 to
Peterson CO	Mgmnt Engnrng	Portable Computer	19,695	2,436	1 Cpt ($43,506)		12.21	2.21 to
Homestead FL	Vehicle Ops	Automatic Car Washer	27,004	9,480	1 E-4 ($18,935)	25,498	21.29	1.52 to
Scott IL	Services	Mag Card Typewriter	3,768	839		5,640	18.83	1.50 to
Little Rock	Missile Engnrng	Ultrasonic Water Leak Detect	1,354			20,700	1.57	15.29 to
Seymour Jn'sn	Reproduct Mgt	Automatic Collate/Stitch	9,493	1,600		21,433	11.49	2.26 to
KI Sawyer MI	Graphic Aids	Phototypesetter	15,610	2,756	1 E-4 ($18,935)		23.16	1.03 to
Andersen GM	Graphic Aids	Phototypesetter	15,696	2,129	1 E-4 ($18,935)		21.42	1.25 to
Castle CA	Pavements & Grds	Ditching Machine	8,695	800		9,693	23.09	1.02 to
118 Bases	Commissary Cntrl Section	118 Programmable Work Stations	2,762,866	401,464	174 GS-3 ($3,665,847)		20.72	1.33 to
Sheppard TX	Administration	Dictation System	6,266	33,617	3 Auth ($50,304)		19.03	8.03 to
Little Rock	Pavements	High Pressure Washer	26,000	400	1 E-3 ($15,126)	12,539	22.90	1.06 to
Pentagon	Data Automation	Aux ADP Equipment	145,400	90,912		565,204	10.03	3.89 to
Patrick FL	Space Ops	ADP Equipment	38,739	12,224		66,672	17.32	1.72 to
Offutt NB	Mgmnt Engnrng	Programmable Calculators	48,840	4,478	2 E-7 ($60,214)	1,080	19.24	1.25 to
Offutt NB	Clinical Lab	Blood Plasma Freezer	1,945			2,718	17.20	1.40 to
Mather CA	Operations	Central Dictation Equip	8,199	80,0[illegible]	8 Auth ($179,134)		11.82	21.85 to

Notes: FASCAP rules are:

1. FASCAP items must be bought "off-the-shelf" and cannot be central procurement items.
2. The total cost must be amortized in 2 years, and total cost cannot be less than $1,000.
3. "Hard" savings must result – discreet manpower positions – or line item in O&M budget.
4. FASCAP funds not for nonappropriated fund activities or major force programs IV and X.

[a] For total FY 1977 program funded at $6.5 million, total 2-year savings is $11.4 million (including 269 manpower spaces) and estimated life-cycle savings could approximate $40 million.

[b] In computing required amortization period (payback in months), both cost to buy and cost to maintain are included.

[c] In computing return ratio (payback rate), only cost to buy was included.

the Congress the virtues of the FASCAP principle. The FY 1979 President's Budget request does include new FASCAP funding for the Air Force.

Unhappily, that Air Force funding level is only a token $3.5 million. Fiscal constraint forces tough decisions and, in the face of severely competing mission demands for limited dollars, an essentially token FASCAP funding level was accepted by Air Force senior management as a compromise position for FY 79.

The Congress must now act on that compromise funding request. In my considered view, the Military Departments should exert every effort to assure that this productivity-enhancing program—however small—is funded in FY 79 at least at the level requested in the President's Budget.

Indeed, it is my view that the cognizant elements of the Executive and Legislative Branches might well go a giant step further in meeting the demand for imagination and initiative in the Federal Productivity Program. Experience in the annual planning, programming, and budgeting processes of the Executive Branch quickly teaches that there are far greater demands for dollars to support programs of varying degrees of merit than there are dollars to do the supporting. Having that experience, one should approach with trepidation any simple assertion that more money should be provided—from somewhere—to support programs such as FASCAP. Rather, any assertion that added funding should be provided must be accompanied by a rational recommendation as to the source of that funding.

In the case of FASCAP, a source is available. Because *fast payback* is the essence of this capital investment program, implementation of each FASCAP initiative will generate its own funding within 2 years. Congress might well be asked to appropriate and authorize initially a "revolving fund" at a level of, say $20 million per Military Department, to be replenished over time by the proceeds of FASCAP initiatives. Alternatively, Congress might well be asked to authorize a "revolving fund" to be built up and maintained over time at some prescribed level (perhaps the $20 million per Department mentioned above) by the payback proceeds of productivity-enhancing capital investment initiatives.

With respect to either alternative, the Air Force principle of allowing the proceeds of FASCAP initiatives to be reaped and retained by the initiating organization must be preserved. Allowing the initiating organization to use the proceeds of its FASCAP initiatives to fund other readiness and mission-related initiatives is, in my opinion, an essential attribute of the Air Force approach. It provides to management a strong incentive to innovate as a means of obtaining the wherewithal to prosecute otherwise unfunded mission requirements. It provides to labor an equally strong incentive to join in the process of innovation, without having to give up the manpower positions and incumbent personnel effectively replaced through capital investment. To retain this essential incentive, the "revolving fund" could be funded by, say, a 25/75 percent split of the payback proceeds of FASCAP initiatives; that is, 75 percent of the beneficial results of a FASCAP investment could be retained by the initiator, and the remaining 25 percent could be allocated to the "revolving fund." This scheme could be supplemented by a proviso that appropriate adjustments in percentage allocations would be made to assure that the initiating organization did not lose any manpower positions as a direct result of a productivity-enhancing capital investment (e.g., "payback" to the fund would be made using the materiel and other-resource dollars saved, exclusive of military and civilian personnel appropriation dollars or position authorizations).

I would now like to talk about productivity enhancement through labor-management forums. Beginning in 1975, with the assistance of the National Center for Productivity and Quality of Working Life (represented by Mr. Herbert C. Held), we sought and obtained the cooperation of the Air Force Logistics Command in establishing a Labor-Management Productivity Forum at the Sacramento (California) Air Logistics Center. The Forum was initially installed in the 1200-employee Industrial Products Division; and expanded in 1976 to include all 6400 employees in the Directorate of Maintenance. Plans for 1978 look toward further expansion to cover the entire Logistics Center, more than doubling total personnel coverage.

The pilot program councils or forums were established at a total of four DoD sites, and are described in the 1977 Annual Report to the President and Congress from the National Center for Productivity and Quality of Working Life (NCPQWL):

> The programs are based on a memorandum of agreement between management and labor regarding terms and objectives. Although the agreements are not all the same, they have certain provisions in common: they are not legally binding and can be terminated by either side on 30-day written notice, and the councils have a nonadversary role and are limited to considering issues not usually covered by collective bargaining agreements.
>
> The agreements also specify the makeup of council membership, with labor and management having equal representation. Usually two co-chairmen represent labor and management, and membership is generally restricted to eight or less, with final selection made by agreement of the co-chairmen.

At the Air Force Sacramento Air Logistics Center, agenda items coming before the Forum have generally been those which will:

1. Encourage industry and labor initiatives in the development of methods, techniques, and systems for the improved utilization of human resources.

2. Develop efforts to improve cooperation between labor and management.

3. Encourage improvement of technological resources.

4. Review existing regulations and fiscal policies which adversely affect productivity growth and make recommendations in respect thereto.

5. Encourage selected research programs which will increase the rate of productivity and apply accurate reliable measurement techniques to evaluate changes in productivity.

6. Develop and improve a public information program to inform the work force of the meaning and importance of productivity and productivity growth. Joint press releases will be developed.

7. Encourage the inclusion of productivity improvements and quality of working life as prime considerations in policy decisions.

8. Address problems and problem solving incident to all of the above.

As indicated in the previous excerpt from the Report to the President and Congress, issues such as the following are not appropriate for Forum consideration:

1. Issues covered by the current collective bargaining agreement between labor and management, as well as matters involving changes to existing personnel policies, practices, and procedures subject to negotiation between the parties.

2. Personnel movements as the result of Upward Mobility Programs, formal training programs, EEO and Merit Promotion Programs, and Reduction in Force procedures.

3. Matters pertaining to procedures under the Freedom of Information Act and the Privacy Act.

4. Personnel matters subject to individual grievances, complaints, or appeals.

It has seemed to me from the outset of our Air Force initiative that the Labor-Management Productivity Forum principle responds directly to three fundamental demands of overriding importance to the National interest:

1. The compelling need to reverse the trend in our annual productivity growth, surpassed in the last 10 years by a score of nations.

2. The burgeoning demand of today's worker for work satisfaction and participation in the job.

3. The reversal of "traditional" labor/management antagonisms, which on occasion cancel out any of the advantages of an adversary relationship under our economic system.

Accordingly, when the fiscal resources available to the NCPQWL needed bolstering in order for that Agency to continue to provide to the Air Force a neutral third-party negotiating capability between labor and management, we acted promptly. I believe the neutral third party role has been and will remain for some period an essential ingredient in expanding the use of productivity forums. Translating that conviction into action, the Air Force Director of Manpower and Organization signed a formal agreement in the summer of 1977 with the Executive Director of NCPQWL, covering funding arrangements and NCPQWL continued "third party" assistance to the Air Force in the formation of additional labor-management productivity councils at other Air Force Depots and like activities. Our Air Force Management Engineering Agency was designated to administer the agreement. The agreement does not in any way alter the principle that each council will be locally oriented, and will be based on an exclusive agreement between the local Air Force commander and local union leadership.

The importance of the local and union participation in the effort becomes apparent in considering the 16 February 1978 statement before a Task Force of the House Budget Committee, by the National President of the American Federation of Government Employees. Air Force labor-management productivity forums were lauded as seeming "to be working quite well" and resulting in substantial federal savings. It was concurrently emphasized that any other programs which "fail to recognize the union's legitimate roll" in the individual member's workplace, be made a focus of union objection.

The utility of using the Air Force Management Engineering Agency (AFMEA) to administer the labor-management productivity forum agreement is equally self-evident. I believe the work measurement systems of the AFMEA program are widely recognized as the most effective and sophisticated approach to the development of staffing standards in the entire federal government. That unique program is overseen by AFMEA, under the tutelage of the Director of Manpower and Organization, and prompted the House Armed Services Committee statement that: "The Air Force remains the best managed service in terms of manpower . . . these management engineering concepts have apparently been a major contributing factor . . . "[3] And in the final analysis, productivity and work measurement are simply dual aspects of the same concept. Through a work measurement program, measures are developed which establish manhours required to produce a specified output. The normal expression of productivity is output per manhour (although more sophisticated productivity measures also consider inputs other than manhours). Mathematically, given the relationship:

$$y = bx$$

where y is required (allowed) manhours, b is manhours per unit of output and x is variable units of output . . . productivity, or output per manhour, is obviously the reciprocal of b.

The success of Air Force productivity enhancement through labor-management productivity forums has been duplicated in comparable NCPQWL-sparked initiatives in Army and in other Defense Agencies. Extension and expansion in Navy

[3] *US Congress, House Committee on Armed Services, Hearings on Defense Appropriation Authorization Bill for FY 1977, 94th Congress, 2nd Session, 1976.*

facilities, particularly those Navy activities comparable to the other Service logistics depots where the current forums met their initial successes, seems clearly warranted. The cost of "third-party" assistance provided to the Air Force by NCPQWL has been minimal, representing in FY 1978 less than $200 thousand.

Of course, the ability to proceed with initiatives of the sort described herein is always proportional to the willingness and resolve of the responsible Departmental officials. Clearly, that capacity exists in the Navy Personnel Research and Development Center and in the Office of the Deputy Chief of Naval Operations (Manpower). The observations and recommendations contained in this paper are, accordingly, referred to for their consideration and for the consideration of my colleagues participating with me as Panel Members at this Conference.

Dr. Broedling: I would now like to introduce Dr. Brian Usilaner, of the General Accounting Office.

Dr. Usilaner: My remarks are directed toward how I view productivity in the federal service and the problems involved for improving productivity, from my perspective both in OMB and in GAO. There are a lot of experts on federal productivity, and there are a lot of problems. Alan Campbell did an excellent job of putting in proper perspective the problems involved in improving productivity and the required solutions. If those reforms do not go through, then we are going to be faced with the same barriers that have confronted us throughout the years in which there are more disincentives in our present system to productivity than there are incentives.

The key to motivation and to improving productivity is something called measurement, which is really only a score-keeping technique. But, without measurement, in essence, you do not have improvement. Without measurement you cannot have a goal. Without a goal, what you are really saying is that we accept any level of performance. Without measurement you cannot have incentives or good performance appraisal. There has been an unbelievable amount of resistance that we have come across in developing this productivity measurement system in the federal government. For example, I have seen many human resource programs that shy away from measurement. They say there are a lot of intervening variables, and they make a lot of excuses.

We have identified three uses of productivity measurement. The first is an economic measure. In terms of economic accounts, the government is assumed to have zero productivity, which has all types of implications—especially as wages are going up. The second is something called political use of productivity measurement. One of the most upsetting things in traveling around the country and talking to federal managers in the field is the way that every politician campaigns on the inefficiency of the federal government. They make generalized statements based on observations of one government office about the inefficiency of close to 3 million employees. One thing hopefully that this measurement system will serve to do is to overcome those generalities. Right now productivity in the federal sector compares favorably with the productivity in the private sector. However, until we can overcome that bias—that government is inefficient—we will continue to have arbitrary controls. A third use is from a managerial perspective; that is, how to improve your operations. Here is where the system breaks down. The government has a lot of measures, but when you ask the question of how federal managers are using these measures to improve their operations, you get little feedback about specific uses being made of the system.

The reasons given for lack of management use are that the measures are not good enough or they are not broken down. In my opinion, those are not the reasons. Rather, it is because the federal manager is not motivated to improve productivity. You can try to sell productivity; you can list the steps involved in implementing a productivity improvement program, but you will have minimal impact. There are, in my opinion, two pressures which must be placed on the federal manager before he will take an interest in productivity and start productivity improvements.

One pressure would come from the budget process. The budget process can be construed as an organizational incentive. Right now, the budget process is one of the key motivators or disincentives we have in our system. I can cite—when I was in OMB—examples of budget cuts based on arbitrary productivity goals, across-the-board cuts which hurt the efficient manager more than the inefficient manager. If you come in with productivity improvement, you get cut, and the savings revert back to the Treasury. So the name of the game is to squirrel funds and to develop measures to enable you to get as big a budget as possible because you know you are going to get a cut. So, the budget system works as a disincentive. There is really little if any focus on productivity in OMB. There is little if any focus on productivity in the Congressional appropriation committees. Until that focus comes in terms that are used in a positive way, such as sharing the savings, you are not going to get the agencies interested in productivity. For example, there is one cabinet agency which had little if any interest in productivity and productivity measurement. A few relevant questions by the chairman of the Appropriations Committee changed that agency's perspective about productivity in about 1 month, while other people had been trying to sell the concept to this agency for years and years. Questions in the budget process, such as, how are you measuring, what are your productivity goals, what are you doing to improve your productivity?—coupled with a reward for improving productivity by not taking away the savings will go a long way in improving federal productivity. There were hearings recently by the House Budget Committee on the subject.

The second one is the fact that we do not relate our reward system to performance. We do not have managers in the federal government in the true sense of the word. We have people that administer programs. For example, you talk to regional administrators who are responsible for millions of dollars in program funds and

find that they cannot make basic management decisions, such as those pertaining to moving people around, promoting people, travel, overtime, etc. Such decisions have to go to Washington for approval. In addition, employees see that there is little, if any, relationship between their performance and the rewards that are forthcoming. Top level managers in the private sector who have served in advisory capacities in the federal government say simply that the federal government system pays for breathing. It is really not a merit system in the true sense of the word.

However, even if the proposed reforms are implemented, that will not, in my opinion, solve the problem. We are doing a study now in this area in GAO, and in essence we have found that the present system allows rewards to be coupled with performance. However, unless you have quantification of performance, meaning measurement, you are going to have the same type of problems that confront the existing system—bias, favoritism, and so on. You cannot get away from measurement.

In closing, I see six obstacles that must be overcome. One is a lack of working together between what I would call the personnel or behavioral approaches to management improvement and the true classical management analysis approach to productivity improvement. In my work with departments and agencies, I could count on the fingers of one hand the number of agencies in which the personnel department is viewed as being helpful to the productivity improvement process. In fact, it is viewed in a negative sense. It is off doing its own thing with attitude surveys, and the management analysis division is off doing its own thing. Often what they are doing is in conflict. I have not seen that in the private sector.

Secondly, in the federal government, we do a lot of work collecting a lot of data. We have a lot of reports. However, we spend little, if any, time working to feed back those data. We need to develop ways to present managers with the data and to train them how to use the data in working with their employees. For example, in the human resource area I have seen, time after time, where an attitude survey is administered, an outside consultant dumps the data, trends, and recommendations on the federal manager's desk, and then expects him to do something with it. Of course he is going to resist it.

That brings us to the third obstacle, and that is resistance to measurement. No one wants to be held accountable. We have documented this resistance to accountability in several agencies. Unless you have a reward structure set up, you are going to continue to have complaints: these measures are not good enough, they do not consider the quality, etc.

Fourth, we in the federal government have a fadism approach to productivity. As a result, management becomes quite skeptical about productivity improvement and tends to resist implementation of approaches. I think you know what I am talking about: the cost reduction program, MBO, PPB, ZBB, job enrichment, effectiveness measurement, etc. As a result, we react to these programs in a very superficial way, because we know that next year there is going to be another program that we have to react to. We have to institutionalize these approaches if we expect to get any permanent results.

The fifth one I have already talked about; that is, we have to improve the incentive structure and to remove the disincentives.

The last one is that we are working in an environment in which we have top managers that are political. Before the Nixon administration, a political manager would stay in Washington approximately 20 months. During the Nixon era, it dropped to about 16 months. With that type of turnover, our political managers cannot be expected to be interested in improving productivity which takes a long amount of time. The capital investment program is an example. Why should a political manager cut personnel to do something that might not benefit him? So his perspective is not something called productivity improvement.

In closing, there is an opportunity in Washington right now. I think we have someone in a top level central agency position for the first time who really understands and comprehends what productivity improvement and productivity measurements are all about. In my opinion, we have the best chance that I have seen in the last several years for overcoming these barriers that I talked about, so that we have an environment that is conducive to productivity improvement rather than one which penalizes the manager for improved productivity.

Questions of Panel

Question: Dr. Usilaner, I have an observation for you from someone who operates ships at sea pertaining to the importance of quality and of the material condition of the ships as part of productivity. I read a GAO report recently which recommended that we take off the Navy crews when ships go into Navy shipyards for overhaul. It said overhauls could be done more cheaply and probably in less time if they were done with just a civilian workforce. One of the reasons given was that a survey showed that the Navy people on the ships in overhaul had low morale and would prefer to be at sea rather than in the shipyard. I would like to just comment that probably no one prefers to work in the overhaul environment—you would have to be a real glutton for punishment. However, I submit to you that, if I am going to drive that ship when it gets out of overhaul, I need to have the crew involved during the overhaul. Moreover, the Navy personnel are really needed by the civilian shipyard workers due to the complexity of the equipment and of the whole operation. That makes for readiness at sea which is what I think this conference is all about.

Dr. Usilaner: I should have emphasized that, when we talk about productivity, we view that as only one aspect of measurement. There have been horror stories throughout the federal government in which there is an emphasis on productivity with a resulting degradation in

quality. A good example is what happened several years ago when there was a big push on productivity. As a result, it went up something like 6 percent in 1 year compared to no more than 1 percent in previous years. However, quality went way down. So productivity improvement has to be viewed in conjunction with other measures of performance, such as readiness, quality, or customer satisfaction.

Question: I have two questions of Dr. Clarke. One, since Dr. Usilaner just told of the obstacles to productivity in the public sector, it would be interesting to hear your view of the obstacles to productivity in a large corporation. My second question is how do you resist the pressures against support of human-resource-oriented productivity programs in the face of cuts or tight money?

Dr. Clarke: Let me take the questions in inverse order. The cost of the manpower component in the Bell System has reached a point where it has every top manager's attention, including the chairman of the board. One reconfiguration that we are now undergoing is to accelerate technological improvements in order to displace that highest of all cost items—the employee. When you introduce new technology, it changes the whole mechanics of the jobs, giving us a built-in opportunity to restructure. Also, I can only echo what my colleague here said, that measurement is the name of the game. You would not believe how many measurements we have in the Bell System. We have to be able to measure not only what happened to productivity but what happened to cost, to service to the *public, to public reaction, etc.*

Regarding your second question—about obstacles to productivity improvement. I have heard people here say that the problem is that people do not believe in what can be accomplished through human resources development at the top of the organization. In many of our companies within AT&T, we still have managers who manage by secretly generated reorganization structures, by edict, by ordering people around. We have found these methods just do not work. Consequently, we try to use successful role model examples in each department, saying, for example: "If we can do this in the New England Telephone Engineering Department, can you find a way to implement that same kind of savings in your engineering department?"

Question: Captain Eyler, I was interested to hear you say that Human Resource Management Centers work directly for the fleets, but that your biggest problem is in getting the unit commanding officers to recognize that they have this as an asset. Having observed the fleet, I think they need this kind of help. Do I read in what you say you are not getting the support from the fleet type commanders, group commanders, and squadron commanders? Is the system perceived as a social action, welfare program which was started by Admiral Zumwalt and is now waning? Does Admiral Hayward really support the program?

Captain Eyler: Often, commanding officers do not support the HRM process initially and a lot of good productive time on the part of the HRM team members is used up educating commanding officers about the type of assistance that can be provided. However, once they become involved in the process, they realize that the process is really helpful. The same thing usually happens with the rest of the managers in the units. It is a shame that we cannot get that point across earlier. You would think, since we started this program in 1974, by now it would have come of age. However, with the turnover we have in the Navy, that has not happened. It requires a constant educating process. Right now, we are on that part of the curve where the people who were in shore billets and not involved in the program are now coming to sea. Because of limited resources, we can only put our heavy involvement into the fleet units. Do we have Admiral Hayward's support? I cannot speak for him but, in terms of his behavior, I would say the answer is definitely "Yes."

Question: Why do so few commanding officers use it?

Captain Eyler: They all use it. That is one of its *negative aspects. It is a mandated program* and each unit is scheduled for this involvement on a cyclical basis. Originally, the program was run out of the Washington office as a project. In 1974, the HRM Centers were given to the fleet commanders-in-chief because it was perceived that the program had a better chance of operating and surviving than if it was managed in Washington. That, of course, is one of my problems. I have a very difficult time, when we come up with a new way of doing business, to get through that circuitous chain-of-command to the commanding officers of the HRM Centers. I have to go from the VCNO through the commanders-in-chief down to the HRM Center commanding officers. We also get some good feedback. We have two schools attended by prospective commanding officers and prospective executive officers of fleet units. They spend 1 week learning about the HRM program. Since we have been at it for almost 3 years, we are finding a lot of support coming along now.

Question: I have spoken to a number of commanding officers about how they felt about the program. For example, USS LONG BEACH got out of overhaul in June of 1976 and deployed on the ninth of September. In that June through September period, she had 55 inspections or "assist visits." Even though the HRM program, when used properly, would help them a great deal, it is just too much of a load on top of all the other requirements and preparations for deployment.

Captain Eyler: I could not agree with you more. We know that this assistance can come at an inopportune time, but trying to get that message across to the schedulers at the type-commander level is very difficult. We hope that, if we can develop a greater realization of the way these various activities interact, we can get better scheduling accomplished. Our assistance should be not only to help the crew get along better together but

also to pass all these operational inspections and requirements.

Question: I must say something about the idea of measurement. Now it is wonderful if you are in a situation where you have stable parts coming in, stable repair requirements, and stable manufacturers. However, in the naval aircraft maintenance business, it is almost impossible to measure productivity increases as decreed by high authority; for example, 2 percent this year, 2 percent next year, 2 percent the following year—because of the instabilities which are involved. We have a shifting work-load over which we have no control; we cannot move people around as we would like because of the myriad of reasons given in this conference so far. We have imposed ceilings and grade level controls; most of all, parts do not come in as predicted; unexpected cracks and spars appear that take another 13 weeks to repair instead of the usual 2; changes to components come down the pike as a result of improvements in maintainability and reliability; huge escalations in parts costs occur; large increases in the cost of blue collar wages occur. Sixty percent of the people in the federal service are blue collar according to the figure given me yesterday. So talking about putting a cap on civil service pay pertains to only 40 percent of the people. Blue collar wages are going up 9.3 percent, compared to 5.5 percent for white collar. With all these variables, trying to measure productivity is not all that easy.

Dr. Usilaner: I would tend to agree with you, but it has been my experience that you must tell the manager he has two options. Either he can develop the measurement approach that is going to be used to hold him accountable for his operation, or we are going to do it for him, and we do not want to hear any gripes. Unless you lay down that ultimatum, you are not going to get people working toward developing good, solid measures. There is a built-in resistance—every measure has been criticized. It is really a different attitude on the part of a federal manager when you tell him he has a chance to participate in the measures that we are going to hold him accountable for.

Question: Your problem is that federal managers do not appear willing to develop measures of productivity. I would submit that the negative stick without the carrot approach to getting a manager to develop productivity measures is exactly what we are trying to avoid.

Dr. Usilaner: I agree. Let's talk about the incentives that are being proposed for federal managers. We are proposing up to 20 percent bonuses, and these could be given as rewards to managers who develop productivity measures. Right now, there is no incentive for a manager to develop measures. Why should he? His appraisal is not based on measures. We went to five agencies that had attempted to develop measurement systems and found it has been resisted because, in essence, in those five agencies there is no accountability. There are no benefits now to hold managers accountable.

ORGANIZATIONAL EFFECTIVENESS: HOW CAN MILITARY ORGANIZATIONS MONITOR IMPROVEMENTS IN MOTIVATION AND PRODUCTIVITY?

Dr. John P. Campbell
University of Minnesota

When examined closely, the title of this talk poses questions of almost cosmic proportions. The issues are larger than life and have been examined many times before. Hundreds (perhaps thousands) of highly intelligent people have worried about them and millions (perhaps billions) of dollars have been spent in attempts to solve them. They should be approached with realistic expectations and considerable humility. In the sense that people typically use such terms, there are no "answers" or "solutions" here. No new technology will save us from the frustration of dealing imperfectly with productivity and motivation issues. Nevertheless, as has been noted already at this conference, there is still a great deal of progress that can be made. Unfortunately, in my opinion, what needs doing requires much effort and it is often difficult and dull work. Solutions which are easy and fun may sound good in the world of the media, but the payoff is slight for serious organizations. The message *is* important. End of sermon.

The things I will try to do in this paper are:

1. To argue that "organizational effectiveness" is a "theory" that an organization has about itself (and which it *must* have). This is not as "academic" as it sounds.

2. To review some basic definitions that may prove troublesome. In a sense, this will be an academic exercise.

3. To outline what I think are the most common pitfalls in attempts to assess or monitor these variables.

4. To suggest where such thinking might lead for purposes of monitoring motivation and productivity.

The background on which these remarks are based is as follows. During the past few years, my colleagues and I have made several attempts to make sense of productivity and motivation (Campbell, Dunnette, Lawler, & Weick, 1970; Campbell, Bownas, Peterson, & Dunnette, 1974; Campbell & Pritchard, 1976) and have participated in several previous conferences to discuss these issues (Bowers, Franklin, Drexler, & Wissler, 1975; Spray, 1976; Goodman & Pennings, 1977). The following remarks are my own opinion about where previous efforts in these areas seem to lead.

One further caveat is in order. The charge given to me is to talk about monitoring and measuring productivity and motivation, not to describe or advocate methods for changing them. Thus, I will speak to the identification of the dependent variables (criteria) and not to the evaluation or description of the independent variables (i.e., intervention or change methods). That responsibility falls to others at this conference.

To ask a global question about whether an organization is "effective" or "ineffective" is not useful. Effectiveness is not one thing. An organization can be effective or ineffective on a number of different facets which may be relatively independent of one another. In fact, one may ask, are there *any* decisions made about organizations that require an overall measure of organizational effectiveness? Perhaps a better way to think of organizational effectiveness is as an underlying concept or point of view which has no necessary and sufficient *operational* definition, but which constitutes a model or theory of what organizational effectiveness is. The functions of such a theory would be to identify the kinds of variables we should be measuring and to specify how these variables, or components, of effectiveness are interrelated—or should be interrelated.

Strictly speaking, it is not possible for anyone concerned with the effectiveness of organizations to avoid operating via some kind of theory about it. Without a theory of some sort, even if it has never been made public, it is not possible to say that one organization is more effective than another, to say that variable X is a measure of organizational effectiveness and variable Y is not, or to plan ways to "change" an organization. Thus, it is incumbent on all those concerned to make their "theories of effectiveness" as explicit as possible.

Two major points of view have competed for recognition as the most useful general conceptualization of what organizational effectiveness means and how it should be assessed. They have been given various labels, but the most popular are the *goal-centered* view and the *natural systems* view (for example, see Ghorpade, 1971). The term "system" is used here somewhat differently than it is used by those who deal with systems theory in a formal or mathematical sense. The distinction between these two approaches comes very close to a distinction between means and ends.

The goal-centered view makes the assumption that the organization is in the hands of a rational set of decision makers who have a set of goals in mind which they wish to pursue. Further, these goals are few enough in number to be manageable and can be defined well enough to be understood. Given that goals,

or desired end states, can be thus identified, it should be possible to plan the best management strategies for attaining them. Within this theory, an effective organization simply is one that accomplishes its goals. There are a number of variations of the goal-centered view. The management by objectives tradition (for example, Odiorne, 1965, 1969) tends to fall into this category. Cost/benefit analysis (Rivlin, 1971) is an attempt to assess the actual utility of accomplishing specific goals. Historically, the industrial/organizational psychology view of individual performance is certainly a goal model (e.g., see Dunnette, 1966).

The natural systems view makes the assumption that if an organization is of any size at all, the demands placed upon it are so dynamic and complex that it is not possible to define a finite number of organizational goals in any way that is meaningful. Rather, the organization adopts the overall goal of maintaining its viability without depleting or harming its environment and an effective organization is one that has "good" mechanisms or the "means" for coping with its environment. One requirement here is that, to be effective, the organization needs a good theory specifying the necessary coping mechanisms. Historically, a clear example of such a natural systems model that incorporates specific *a priori* notions of what system variables should be assessed is the one developed at the University of Michigan Institute for Social Research by Likert and his associates (Likert, 1961, 1967). In the beginning, the basic systemic variable was the degree to which subordinates participated in making the decisions which affected them. By implication, an organization in which decisions were made participatively was a healthy and capable organization. The list has since been expanded to include communication factors, motivational independent variables, and the like, and the current state of the organization is measured via a questionnaire (Taylor & Bowers, 1972; Franklin, 1973). Other examples of systems models have been those outlined by Argyris (1964), Blake and Mouton (1968), Katz and Kahn (1966), etc.

How would effectiveness be assessed from each of these two major perspectives? The goal-oriented procedure would be to seek out the principal power centers or decision makers in the organization and ask them to state their objectives. Techniques might also be employed to reveal the actual operative goals of the organization, as well as the publicly stated ones. Once the goals are defined, the next step is to develop criterion procedures to measure how well the objectives (of either kind) were being met. The "validity" of a particular criterion for assessing the degree of attainment of a particular goal would be an issue to consider. We should keep in mind that the goals themselves are not criterion measures. One is a desired end state and the other is an operationalized continuum representing the degree to which the desired end state is being achieved.

Within the systems framework, the initial questioning would *not* center around what the organization was trying to accomplish. Rather, it might be concerned with such things as the degree of conflict among work groups, the nature of communications, the level of racial tension, the percentage of jobs that were filled by people with the appropriate skill level, the job satisfaction of the employees, and the like. Again, to make this approach work, we must have some *a priori* notions of the characteristics of a strong system and the questioning must be centered around those notions. A basic assumption is that a "strong" system is an effective organization, no matter what the task.

What does this brief characterization imply about monitoring productivity and motivation for purposes of keeping tabs on organizational effectiveness? One implication is that the theory of effectiveness we adopt will strongly influence the aspects of productivity and motivation that are deemed important for measurement. For example, under an extreme goal-oriented view, there is no need to worry about monitoring motivation since it is task accomplishment that counts.

In a few minutes, I want to advocate a specific characterization of effectiveness that might be used to guide efforts to monitor productivity and satisfaction. However, before doing that, I think the concepts of productivity and satisfaction must be examined a bit more closely. This will entail talking about definitions. While this is not very exciting, there are a few essential points that must be made.

First, perhaps the most frequent definition of *productivity* is in terms of the *total* volume of goods and/or services produced during some time interval. Second, if total productivity is divided by the total costs of production, the most common term for the ratio is organizational *efficiency*. One obvious point here is that efficient organizations may not be very productive, and vice versa. Further, to reward efficiency might be to inhibit productivity. Third, if total costs are subtracted from total productivity, the result is *profit*, or something analogous to it.

Why distinguish among these three? Because I think they are different enough such that, if managements are rewarded for maximizing one and not the others, then very different kinds of things will most likely happen in the organization.

Qualitatively different from the above three is the concept of *military readiness* or the probability that the organization will be able to perform some specified set of tasks, under specified conditions, if it is called upon to do so. Unfortunately, a neat and clean method for assessing readiness has, to the best of my knowledge, never been developed. What's important is that the organization is rewarded for having the *potential* to do something, not for actually doing it.

Productivity, efficiency, and profit are firmly rooted in the goal model. They are end states to be achieved.

Readiness is something else. It is a "state" the organization is in and, if readiness is high, the *assumption* is that the organization will be able to accomplish its goals at some future date. A military organization's theory of readiness must specify the characteristics or mechanisms that define readiness. Is it having "sufficient" personnel with "proper" training, large quantities of sophisticated equipment, highly motivated personnel, or what? An interesting question at this point is whether the future task objectives of the organization must be identified before the ingredients of readiness can be identified. That is, to judge a military unit's degree of readiness, how specifically must the future tasks of the unit be identified? If a unit is "ready," is it ready for *anything*?

Worrying about the state of motivation in an organization moves firmly over into the natural systems model. However, I think it is wise at this point to distinguish among the concepts of job satisfaction, morale, job alienation, and motivation. Defining job *satisfaction*, although it bugs some people, seems relatively simple to me. People receive various "things" (e.g., money, feelings of achievement) by virtue of working in a job. Based on the absolute amount of such outcomes they actually receive, and the amount they think they should get, they form an opinion as to how satisfied they are with the amount in question. For example, it becomes relatively easy to ask how satisfied people are with their present pay. Many job satisfaction questionnaires do just that. Keep in mind that, by intent, job satisfaction is an expressed opinion—nothing more, nothing less. It implies nothing directly about behavior. Although things often get confused, satisfaction with the outcomes of working is a very different thing than the motivation to work.

The meaning of the military concept of *morale* is so obvious for some people that it doesn't need definition and so obscure for others (e.g., see the review by Motowidlo, Dowell, Kapp, Borman, Johnson, & Dunnette, 1974), that it resists all attempts. Even so, it does seem to represent a concern on the part of military leadership that is not synonymous with a concern about job satisfaction. Morale connotes individual characteristics that are more directly behavior-oriented (e.g., a strong attraction to the unit, an acceptance of the unit's goals, a strong propensity to exert great effort toward accomplishing the unit's goals, etc.).

Yet another distinction can be made between job satisfaction and job *alienation*. Recent concerns about the "Quality of Working Life" have generated considerable discussion about the latter. Classic notions of alienation say that if people (1) are powerless because they have no control over what they are asked to do, (2) feel that what they do is meaningless because it is such a small part of the whole, and (3) have no ownership in the things they produce, they will experience a feeling of disassociation and lack of involvement with what they do. This alienated state implies a rejection of any identification with the job or any sense of responsibility for it. A reasonably important point here is that satisfaction and alienation are conceptually different. One could either be alienated from a job but reasonably satisfied with many of the outcomes obtained for it, or be very dissatisfied with one's job but not alienated from it. The remedy for low job satisfaction (e.g., more pay) might be very different than the remedy for high alienation. Unfortunately, the data cited in support of the existence of alienation from work are often generated by measures of job satisfaction. As a result, the national discussion of these issues seems quite confusing, to me at least.

Saving the worst for last, what, then, is *motivation*? If we can't say what it is, how can it be monitored? In the belief that it illustrates a couple of important points, I would like to suggest this brief explication. At the level of individual behavior, consider the following simple-minded listing of determinants of individual performance.

$$\text{Performance} = f\left[\begin{array}{l}\text{Basic Aptitudes} + \text{Specific task skills} \\ + \text{An understanding of what's to be done} + \text{Choice to perform} \\ + \text{Level of effort expended} + \text{Choice to persist on the task over time} \\ + \text{Situational facilitators or constraints not under the control of the individual}\end{array}\right]$$

Aptitudes are the basic underlying trait differences that the individual brings to the organization. Specific skills are produced by learning (e.g., formal education or training programs). Task understanding is a necessary component of task performance that is often overlooked in analyses of performance problems. If people don't realize or understand what they are supposed to do, it is very difficult for them to do it.

What I am suggesting about motivation is that it has to do with only some of these determinants of performance. Specifically, it refers to individual differences in choice behavior, the level of effort expended, and persistence on the task over time. It is not synonymous with differences in performance. Now, choice, effort, and persistence can be thought of as the dependent variables making up this thing called motivation. In the basic experimental psychology literature, these variables are usually labeled as the direction, amplitude, and persistence of a response. They are the behaviors to be influenced when we attempt to influence "motivation." Influencing job satisfaction is not influencing motivation. Performance is not a direct function of job satisfaction. Obviously, where there are dependent variables, there are independent variables, or the things which control choice, effort, and persistence. There are any number of

motivation "theories" (Campbell & Pritchard, 1976), which try to tell us what independent variables are important (e.g., reinforcement theory, cognitive expectancy theory, equity theory, Herzberg's two-factor theory, Maslow's hierarchy of needs, etc.). Perhaps the most interesting argument now raging is between the operant or reinforcement types (e.g., Hamner, 1974) and the cognitive/expectancy types (e.g., Locke, 1968; Vroom, 1964) over whether behavior in organizations is best explained by empirical study of past reinforcement histories or by asking directly about their future intentions.

As I mentioned before, a lot of work already has been devoted to developing theories and measures of organizational effectiveness, productivity, and individual motivation. The literature generated by these efforts is large and has been summarized elsewhere (e.g., Campbell et al., 1974; Goodman & Pennings, 1977; Motowidlo et al., 1974). I would like to use it to make some cautionary statements about prospects for monitoring productivity and motivation.

1. One measure of organizational effectiveness, one index of productivity, one index of motivation, or *one* measure of anything won't suffice. When handed one index, the typical reply of a decision maker is: "What went into it?" "Is this number high or low?" "How should I interpret it?"

2. The usual archival "objective" indices are not useful very often. I think it is a truism that objective measures are subjective measures once removed. Further, objective measures are not immune to being manipulated to serve the ends of special interest groups. Both objective measures and subjective ratings are susceptible to biases and both can be fudged.

3. It is very dangerous to develop measures of any organizational characteristics without keeping firmly in mind the *specific* decisions for which the data are to be used. Thus, before indices of productivity or motivation are monitored, the organization must have a very clear idea of why it wants the information and how the information is to be used. For example, conducting job satisfaction surveys without a specific plan for using the information invites trouble. At best, the data will go to waste. At worst, the survey will create unrealistic expectations among the organization's members and the resulting frustration could well leave things worse off than before. As another example, consider the military's long-standing problem with Officer Fitness Reports (i.e., performance appraisals). The distribution of ratings is very negatively skewed and almost everyone looks absolutely great. Unfortunately, the fitness report often must serve several objectives, not all of which are compatible. For promotional purposes, it would be nice to distinguish clearly among individual subordinates. However, a commanding officer often uses high ratings to create high satisfaction in the group. Also, the higher the overall ratings of their subordinates, the better officers look to their own superiors. Obviously, the same data cannot serve such conflicting demands very well. It ought not be asked to do so. No amount of psychometric slight-of-hand or sophisticated measurement will overcome the conflict. The overall moral is the same for determining organizational effectiveness. At every stage in the process, three questions must be asked: What questions do we want to answer? Will the data base toward which we are moving answer the questions we want it to answer? Are we inadvertently moving toward asking the same data to serve conflicting aims?

4. There are good questionnaire measures of job satisfaction available. Unfortunately, job satisfaction scores are not related to very many behaviors. The relationship between job satisfaction and turnover, perhaps, is an exception. However, the answer to the question, "Do you intend to leave if you get the chance?," might be an even better predictor of turnover than is job satisfaction. Job satisfaction must be valued for its own sake, and the organization must be very honest with itself in this regard.

5. The method most often used to assess these variables is the questionnaire. There are a number of well-developed questionnaires in use (e.g., the *Survey of Organizations* (Taylor & Bowers, 1972)), but the vast bulk have been poorly conceived and poorly developed. Further, when testing hypotheses about organizational behavior, it is frequently the case that both the independent variables (e.g., perceived job stress) and the dependent variables (e.g., "intrinsic" motivation) are measured by items within the same questionnaire. We are in grave danger of developing a literature about questionnaire behavior rather than organizational behavior.

There is a recurring theme in a number of domains of psychology that has never really been applied to the problems of measuring organizational effectiveness, but it appears so many other places that I think it deserves consideration in the present context.

The basic message, although trite sounding, is as follows: If we want to judge the effectiveness of a course of organizational action, then it is necessary to specify the *specific* task objectives of the action. The term task objectives is used in a very atomistic sense and one would expect a list of such objectives to be quite long for any action of any complexity. The list constitutes the precise definition of what we want the organization to accomplish in specific observable terms.

This theme arises in several different contexts. Probably its first major articulation came from research and development on programmed instruction techniques, where the term "terminal behaviors" refers to the specific things the learner should be able to do when the learning sequence is completed.

This notion was subsequently expanded into a comprehensive procedure for designing and evaluating almost any instructional effort. The seminal contributions were those of Gagné (1962), Briggs (1968), and Glaser (1969). Gagné's now classic argument is that if we cannot clearly specify "what is to be learned," then it is almost axiomatic that we cannot

design the training program itself or evaluate its effects. By analogy, if we cannot clearly specify what we want an organization to do, then it is not possible to design its structure and functions or to assess its effectiveness. The fact that courses are taught and organizations are designed and assessed anyway is not really a counter argument. It merely means the process of specification of objectives has been intuitive or by default. Although simplistic in form, Gagné's idea created something of a revolution in training and curriculum development because he argued that applications of psychological theories of learning are not the primary concern. The straightforward descriptive question of what is to be learned is far more important. By analogy, theories of formal organization will not help us too much in the assessment of organizational effectiveness. What will help is the difficult and time-consuming task of deciding what the specific objectives of the organization are or should be. Since this basic notion produced a virtual revolution in military skills training, why not in military organizational effectiveness?

Another related area is the push toward so-called "criterion referenced testing" for achievement measurement in education. Criterion referenced testing defines a score in terms of the actual skills or knowledge it represents (e.g., being able to identify the 17 most common auto maintenance problems). No mention is made of relative standing in a reference group. Test items are selected such that the score reflects the level of competency directly. It should be obvious that to generate such test items, the test developers must understand the subject matter very well in terms of what represent different levels of skill.

Again, I would like to point out the common theme. Competence, or performance, can only be assessed by referring to a long list of highly specific task objectives. Specification of these objectives serves as a rigorous definition of what it is we want the individual performer to be able to do. By analogy, the way to assess organizational performance is for the relevant "experts" in the organization to specify a reasonably complete catalog of task objectives. These objectives should have three characteristics:

1. They must be *concrete, observable* things that organizations do.

2. The *conditions* under which the organization should be able to do them must be specified.

3. The *degree* to which each objective must be satisfied must also be nailed down.

Together with the definitional and conceptual distinctions made earlier, where then does this paradigm lead with regard to effectiveness assessment and/or the monitoring of productivity and motivation?

Since the behaviors of both organizations and people are very much under the control of their *specific* objectives, every organization should build a capability for (1) specifying task objectives of the subunits under consideration and (2) conducting a periodic review of those objectives. Again, the list would be quite long and highly specific, and would require a lot of work to generate. It would be totally unlike the usual statement of general corporate goals. Obviously, this is a rejection of the notion that organizations are too complex to know what they are about. It is assumed here that it is "good" to know.

Once the list of task objectives is specified, several value judgments must be made about it. First, the organization must decide which are considered *means* and which are considered *ends*. Is a particular objective a dependent variable in its own right, or is it really an independent variable that the organization hopes will "cause" certain changes in some more terminal outcome? Productivity goals, in whatever guise, would most likely be judged as end states. Job satisfaction, morale, alienation, and the ingredients of motivation are different. Are they to be promoted as ends in themselves or is the hope that these things will favorably influence other outcomes (e.g., productivity) the real interest? If they are ends themselves, then the indices should be constructed to reflect as closely as possible the organization's value system concerning what a desirable "state" is. If they are means to other ends, then the indices should maximize the probability of measuring something that significantly influences these other outcomes. I will try to end this paper with an example of this distinction. Second, the relative importance of each objective should be judged. People must know where the organization priorities lie.

If the above judgments are made in a thorough and systematic manner, the real conflict in the organization will be identified. It is too much to expect that there will be complete unanimity in these matters; and if the organization internalizes this model of effectiveness, it will not have such an expectation. It is also obvious from this point of view that strategies of conflict resolution will play an important part in the assessment of organizational effectiveness.

There are several techniques that can be used to generate, refine, and revise lists of task goals. First, many of the usual job or task analysis methods have merit, such as interviews with incumbent decision makers and the critical incident method. Somehow, people seldom think of using such mundane procedures to develop goal statements systematically. Second, Delphi or nominal group techniques could be used with panels of experts to develop goal statements on a regular basis. One advantage of this procedure is that the process can be conducted independently at various levels of the organization. The differences in task goals produced by groups with different perspectives might prove uncomfortable but they also would be useful and informative. Third, policy-capturing techniques could be used. One such procedure, often overlooked, is participant observation.

Now, it is obvious that this is really getting away from much reliance on "objective" indices of productivity

or efficiency that are defined in the same fashion and measured the same way across all organizations. Such indices have reasons to exist, but for military organizations that do not produce well defined products or services for which the marginal unit costs can be determined. I think a detailed task analysis is a more powerful way to proceed. It is also probably the most difficult. Every year considerable time must be spent developing the "book of objectives," and reporting progress toward them. However, this is one of the major functions of management and I think the process would have tremendous managerial benefits, in addition to productivity assessment itself. One of the powerful controllers of organizational behavior is a comprehensive statement of specific goals that clearly informs people of what they are supposed to do so as to contribute maximally to the organization. I believe that many people, perhaps most, *are* motivated. They just need a clear idea of what to do.

Now for the sticky question, should motivation be monitored, and if so, how? *If* the intent is to focus on certain individual feelings, opinions, and attitudes as legitimate ends in themselves, then monitoring "motivation" is not what we are after. The motivational variables of choice, effort, and persistence, and the independent variables which control them, make little sense except as determinants of performance. Rather, it is job satisfaction, morale, and alienation that should be measured. Good research in this area has already been done. In the civilian sector, one of the best procedures for monitoring job satisfaction is that maintained by the Sears organization (Smith, 1962). Also, over the past several years, both the Army and the Navy have sponsored a number of large-scale studies designed to develop measures of job satisfaction and morale for armed service personnel. These studies reflect the state of the art in military organizations and are there for all to use (e.g., Borman, Franklin, Drexler, & Wissler, 1975; Taylor & Bowers, 1972; Franklin, 1973).

If, on the other hand, the intent is to monitor elements of the motivational system that influence individual performance and organizational effectiveness, then we are at the mercy of existing folklore and scientific knowledge about what causes what. In the current undergraduate vernacular, this situation could best be described as the "pits." Nevertheless, I would like to go down with the ship, so to speak, and suggest some things that might be done. Keep in mind that I am making a list of things which I think should be *monitored* and am not worrying at this point about "interventions" (e.g., job redesign), which will promote high or low scores on these indices.

First, since the argument here is that specific task goals are such an important determinant of behavior, procedures should be developed for determining whether people *accept* the specific goals which the organization has for their position or for their unit. The questions must be reasonably specific. We cannot simply ask people the general question: "To what extent do you accept the goals of this organization?" (on a 5-point scale, please). In the absence of specific goals with which to link it, the answer would provide little information.

A second important motivational component is the choice to leave or stay. Systematically sampling such intentions should be a part of the monitoring system.

Third, there is an almost universal belief that specific rewards should be contingent on specific aspects of performance. Thus, another aspect of monitoring motivation is to assess the degree to which such contingencies are present. Perhaps it should be done by first asking the people who are directly affected for their beliefs, and then using outside observers to make the same judgments. Discrepancies between these sources would be informative. Again, the questioning must be relatively specific and not of the form: "My pay depends on what I do" (always to never). One caution should be inserted here. In certain organizational situations, there may be performance behaviors that should not be linked with rewards in a contingent manner. That is, there are "good" contingencies and "bad" contingencies, and they should not be lumped together.

Finally, many researchers, managers, etc., have contributed to what are now fairly complete lists of *rewards* that people feel are important. It would be useful to monitor the extent to which these rewards are *present* in various parts of the organization. Again, it would be useful if the availability or non-availability of specific rewards was judged both by the people involved and by independent observers. The only systematic attempt to do this that I know about is the procedure used in the Minnesota Studies of Work Adjustment (Dawis, Lofquist, & Weiss, 1968). This series of studies employed a measure called the Occupational Reinforcer Pattern (ORP), which attempts to reflect the reinforcing properties of a particular situation by asking the supervisor to rate the relative presence or absence of 21 potential reinforcers. It would be a place to start.

In summary, what I am advocating with regard to the monitoring of productivity and motivation is as follows: Productivity must be defined in terms of a large number of specific task goals, using procedures such as those suggested. Given the existence of such goal specifications, the crucial motivational components are goal acceptance, the intent of people to leave or stay, the existence of reasonable reward contingencies, and the availability of valuable reinforcers. Again, a lot of work would be required to maintain such an information system. It must also become an integral part of management. It can't be farmed out to a consultant. However, I see no real alternative if what is desired is anything but a cosmetic solution.

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BANQUET ADDRESS

The Honorable Edward Hidalgo, Assistant Secretary of the Navy for Manpower, Reserve Affairs, and Logistics

On occasions like these, I usually try to tell people what the Navy is up to and what its posture, status, and strengths are. That would be very appropriate today because you have been reading a great deal about the Navy's 5-year shipbuilding program. Although I want to stay close to your subjects of immediate concern and preference, I must warn you that I am no expert on productivity. I am responsible for the utilization of resources, which are of tremendous importance to the Navy. Let me tell you that I face this responsibility with the greatest concern, the greatest respect, and considerable humility. I applaud the purpose that has brought you together, and commend you to continue this periodic professional enrichment. I think it is a wonderful idea that all of these ladies and gentlemen have had to bring this kind of a conference together, this exchange of views and ideas.

Let me dwell on a few initiatives that we have taken and are about to complete after 1 year in this job—I was sworn in on the 20th of April last year. You have probably heard of most or all of these initiatives but I would like you to hear them from me. Like any new administration, of course, everybody always wants to do something noted, something new, something to report. Let me tell you, with total sincerity, that if the contributions that we make move the Navy forward just a few important steps, that will be our satisfaction. What have these organizational changes meant? First of all, Mr. Claytor had asked me to come aboard and take charge of responsibility for Installations and Logistics, with very heavy emphasis on the shipbuilding claims. And the emphasis has not been mistaken. This has been a very challenging problem, and I will come back to it in a few minutes.

Then we went to meet with Secretary Brown, the Secretary of Defense, and, in the course of that meeting, he informed me that there would be one Assistant Secretariat out the window. As I walked out of the room, Secretary Claytor said, "Well, now you have Manpower and Reserve Affairs along with the rest."

I have been greatly concerned about putting these two things together, but I am increasingly confident because I have people around me to give me the inevitable, indispensible support. I think it is going to work. We are determined to make it work. Only a few minutes ago, Bill Paz pointed out to me the great advantage of this merger is that the manpower people now hear about what the installations and logistics people are doing, and vice versa, producing splendid cross-fertilization. I need not tell all of you that when manpower gets out of phase with the weapon systems, you are in deep, dire trouble. There will be no excuse if that happens from here on. The merger is a significant move forward, and we hope it will bear good fruit.

The next initiative I would like to mention concerns the fact that, for quite awhile, the productivity responsibility was in the Assistant Secretariat, Financial Management, with George Peapples and ADM Ahern. Recently I was told that this responsibility was going to come over my way. It is perfectly well understood that the total support of the financial management organization remains indispensible to our purpose of productivity enhancement, and I am sure that we will have it. It is a very close working Secretariat, with constant interface and exchange.

One of the things I have been dealing with a lot in the past few months has been the reorganization of the Office of Civilian Personnel—the Salzer Study. When we, the new Secretariat, came in, this initiative was already quite well along. In fact, there were certain people who felt that it was a fait accompli—there was nothing left to do. However, we felt that it was our responsibility to take another look. We have been looking at it quite a while, and I think this second look has served a purpose. Only 2 weeks ago, I sent my recommendations to Secretary Claytor. He was good enough to accept them, and the OCP reorganization is on its way, to be implemented on 1 August—that's our target date. As a result, there will be a Deputy Assistant Secretary of the Navy for Civilian Personnel. There will also be a Deputy Assistant Secretary for Equal Opportunity because we are determined that that part of our task shall receive our full attention. We think that this reorganization will be a step toward higher and bigger productivity.

Let me turn for a moment to shipbuilding difficulties, an issue that we have heard a lot about in recent times. The gigantic claims, including the breakdown of negotiations, the announced stop-work order in Electric Boat, the charges and countercharges, the confusion, has created difficulties with the Navy's 5-year shipbuilding plan. I will be perfectly candid with you, there is an interaction between the claims problem and the Navy's 5-year shipbuilding plan. There is no doubt about it, these shipbuilding claims of $2.7 billion, in the history of 10 years, has led to an ugly reservoir of acrimony, resentment, and mistrust which is bound to affect the communications between people. It is very important that we find a solution to this. I will tell you, and I've said it on Capitol Hill more than once, that between

now and July 1, we are going to either fail or succeed with both Litton and Electric Boat, General Dynamics. It is possible that the two outcomes will differ, but I have a feeling that the two will either flow together or flow apart. So we will know one way or the other. I can only hope that it will be a positive result.

Let me expand with you for a moment another thought I have about business-government relations. It's an obsession of mine, and it began back in '46 when I began to practice law overseas, something I did for 25 years. I represented these U.S. companies overseas. I found that the top executives in these companies rarely go to our embassies abroad with their problems. On the legal side, they came to me. With their other problems, they went to their accountants—their Arthur Andersons and their Price Waterhouses or to their bankers. That was the alpha and the omega of the advice they sought. And that was the beginning of my obsession.

What is it that is wrong with the relationship between government and business that differences of this kind should exist? It concerned me deeply; it still concerns me deeply. I have tried to analyze it. What is it? Why this adversarial position? By way of contrast, in every other industrial nation that you care to mention—Britain, France, Italy, Japan, Germany—there is nothing like the distances that separate government and business in our country. I say to you this is wrong. I say to you that the strength of our nation is suffering from this parallelism, from this separation. We will have to find a solution. I don't have the answer for it.

There has to be a certain distance between business and government—the role of the enforcer has to be different from the role of the enforced. It takes a lot of understanding to bridge that gap. But what I am saying is that we live in a state that is economic. In our country, the industrial strength is in the private sector, and that is where it has always been, and for all I can see, that is where it is going to remain. Therefore, government and business must interact very closely together. Federal agencies must work closely with business to heighten productivity.

Let me dwell for a moment on manpower, another substantial ingredient of productivity. There is an obvious relationship between what we achieve in the manpower field and the index of our productivity. Manpower problems include problems of recruiting and retention—all linked to the challenge of the all-volunteer force. You read recently about the recommendations of the Presidential Military Compensation Panel in the fields of retirement and compensation—subjects of the utmost delicacy, very fragile subjects. My intimate advisers in uniform, without whom I can do nothing, tell me this is dynamite. But the other side is that if we don't find the solution to these problems, someone else will. The solution may be worse than one we might have found and accepted. So it is to our advantage to move forward with our own initiatives on compensation. Here Secretary Claytor moved forward with great courage and with great intelligence. As you know, the report has just been given to the President. We now are going to work under incredible deadlines. By May 5, we have to get our input to the Office of the Secretary of Defense on one set of problems; by May 22, on another set of problems; and then back and forth. The judgments, the calls, the comments, the observations, and then back with our comments and observations. All with the goal in mind that there will be a legislative package to OMB by the end of this year and that the President will send one to Congress early next year. These are matters of the utmost importance to the productivity of our nation. We are constantly bearing in mind also a very important point that should never be forgotten—that whatever happens, the existing rights of people in our Navy will be preserved and will be respected.

So these are some of the initiatives that we have taken. These are some of the problems that are being addressed. These are some of the policies that are being formulated based on the expertise within the Secretariat working in the closest coordination with the Chief of Naval Operations and his staff.

And here let me pause for a minute with another favorite subject of mine, that essential and so important balance between the contribution of the wonderful men and women in uniform who devote their whole lives, who understand and love their Navy and we, the civilian political appointees, who spend a relatively short time with the Navy. There must be a wonderful balance between the viewpoint and experience that we can provide and the sustaining expertise of military people. How that balance works out, how that mutual respect is achieved and maintained, is essential to the strength of our Navy. All our forces are dedicated to the effective use of resources, to enhancing the quality of the professional status of Navy life, to maintaining the combat readiness of our fleet and the Marine Corps, and to fulfilling our goals as a Navy and the American way of life. It is not an easy task, and indeed it grows harder each day as technology hurtles mankind forward at a breathtaking speed. Our strength in the Navy as a part of our defense establishment and as a nation is always dependent on our ability to devise new ways, new systems, and entire new fields of military capability, and to adapt to these rapid changes as a free people. Productivity is a subject combining knowledge and experience. As a management resource, it is fast coming into its own, within the complex world of government and military management. It will be effective because of each and every one of you, because of the efforts such as this conference, and because many of you will return to your tasks excited and enriched by this getting together.

PART III

PROJECTION OF FUTURE NEEDS

Group 1. Operational Units–Air: Mr. Jack Posner, Associate Director, Organization and Management, General Research Corporation

We picked as our target operational air squadrons, and we did not make a distinction between training squadrons or technical fighter squadrons, shipboard or landbased. Rather, we attempted to address them all.

Instead of listing the problems at the outset, I will take one at a time, discuss it, and indicate the areas where we feel we would have difficulty overcoming it. The order in which I present them represents our priority listing; that is, the order in which we believe they may be soluble. Therefore, the last one on the list was assigned that slot because it has a fiscal solution. We do not think that big money problems are likely to be resolved in short order.

The first problem—we believe that the personnel distribution system is too rigid. It is inflexible and is not responsive to the operational needs of the units we are talking about. The system is not sensitive to the needs and requirements of either the units involved or the people. We suggest that the problem could be resolved by tasking the Chief of Naval Personnel to modify the rules and regulations that his detailers use. The modification should be based on a careful examination of the job in an attempt to make a job-skill match. We thought that in order to study, assess, and resolve the problem you would need a representative group of personnel types, perhaps detailers, and a representative group of users. The result of resolving the problem should either be satisfaction of job requirements or an understanding on the part of the user as to why his immediate requirement cannot be immediately satisfied. We thought that one of the means of resolving the problem would be to reorganize the detailing function within the Bureau of Naval Personnel so that each detailer would be functionally oriented.

Item number two—the proliferation of administrative burdens on operational units, such as inspections, reporting requirements, assistance visits, unnecessary training, and, in some cases, unnecessary maintenance. These burdens not only reduce the time available for productive work, but also seem to reflect the assumption of higher-ups that people running the unit simply aren't responsible or competent. Although our proposed solution to this problem may be somewhat arbitrary, intuitively, we feel that it addresses the magnitude of the problem. We propose that reporting requirements, assistance visits, and inspections be reduced by 75 percent; unnecessary training, by 50 percent; and the aggregate of maintenance done on operational aircraft and operational units, by 25 percent.

Problem number three—the commanding officer has too little discretion to reward, discipline, and motivate his personnel. Ways of resolving the problem include giving the commander an opportunity to use financial incentives, proficiency pay, responsibility pay (that used to be a statutory entitlement), flextime (which has been applied effectively in industry and in some of the services), and meritorious leisure time off—say 10 additional days of leisure time a year, based on meritorious and excellent proficient service. We recognize that there are limitations on the ability to provide these things. These include the statutory constraints on the granting of leave to military personnel, the Uniformed Code of Military Justice constraints in the area of discipline, and the outside pressures which inhibit the commanding officers with respect to their flexibility to provide these incentives.

Problem four—the system does not hold officers or NCOs responsible for lack of performance. If you are going to reward them, you also ought to have a system which holds them accountable for lack of competent performance. The system should be redesigned to make it easier to remove an officer or an NCO. All of us intuitively recognize that is a glib phrase, but we have a fundamental gut feeling that it should be easier to separate an incompetent from his job, based on his demonstrated incompetence. In other words, there should be a decrease in emphasis on tenure vested in the individual. By the same token, officers, for example, who have been twice passed over should not thereupon be assumed to be forever incompetent, and concentrated in certain units like naval air stations. We feel that is a fundamentally erroneous assumption. It is a self-fulfilling prophecy in the final analysis. We recognize that there are legal barriers to some of the things we have suggested, as well as a lot of red tape in addressing these sorts of issues.

Priority item number five—the system does not provide operational units with qualified personnel in sufficient quantity. In the enlisted personnel area especially, the personnel system should be made more responsive to the needs of the individual and the unit. Doing away with one up and one down detailing is a specific recommendation of the group. We recognize that there are barriers in terms of fiscal restraints and the limitations placed upon the services by having to operate in an all-volunteer force environment. We also recognize that, in a high technology area, programming changes frequently happen faster than the personnel system is able to cope with them; that is, technology changes so fast, with resulting changes in the program,

that the personnel acquisition, training, and distribution system is unable to work fast enough to catch up to all of the programming changes. That is a problem that requires closer coordination between the programmer and the personnel manager.

Our last item is one which we know will not be easy to resolve; that is, many air operational units are not provided with adequate spare parts and WRM. The solution is money, and everybody knows about money constraints.

Group 2. Operational Units–Surface and Submarine: CDR Beth Coye, USN, Personnel Support Activity, Naval Training Center, San Diego

Since we didn't have any submariners in our group, we decided to concentrate on the surface Navy. We were a very enthusiastic group, and, after sorting through about 23 problems, we finally ended up with five major ones. We have not come up with any priorities, so these are not necessarily in order of priority. These five problems are:

1. Lack of clearcut organizational goals at all levels of the organization. As part of that problem, we included the need for the Navy to define productivity.

2. Alienation of the young sailor from the Navy subculture.

3. Excessive personnel turbulence at all levels.

4. Perceived conflicting priority between mission and people.

5. A 55-hour workweek in port, more if at sea, versus a 40-hour workweek for most Americans.

In general, we felt that solutions to these problems should have an air or an attitude of experimentation; thus, we recommend that innovations and creativity should prevail rather than the typical mundane everyday approaches to Navy problems.

For the first problem, lack of clearcut goals—let me run through some of the policies and practices that we feel inhibit its solution. The "can do" attitude within the Navy seems to be an established norm; in other words, press on, to heck with goals, press on and get the job done any way you can. There are several communities in the Navy from the subsurface to the surface to the aviation to the restricted line, etc; therefore, we really have conflicting goals within those communities. We do not have one Navy even though we might talk about it. There is also an inability of officers and supervisors to articulate organizational goals. I have run into this as a human resource management team leader again and again. It is very hard to get supervisors, chief petty officers, or even commanding officers to really define goals. Priorities of the CINCs (i.e., the major fleet commands) appear to be very fuzzy at the commanding officer level. Consequently, the middle managers are unable to sort out priorities, and there is a lack of fleet coordination. Some of the recommendations for solving this problem are:

1. Conduct research to determine how all organizational levels perceive goals, and to check out if, in fact, what we say is true.

2. Ensure that goals of the U.S. Navy are articulated clearly in Naval Warfare Publications-50.

3. Conduct regular shipboard training sessions regarding the big picture so that young sailors really know how they fit into the Navy.

4. Explore the feasibility of defining measurable goals at all levels of shipboard organization through the CINC level.

5. Define productivity in peacetime using these goals. Again, we never really got a handle on what constitutes productivity for the shipboard Navy.

The second problem is alienation of young sailors from the Navy subculture. Some of the contributing factors are (1) the recruiting process, which creates unrealistic aspirations, expectations, and dissonance; (2) access to drugs and liquor, which provide immediate relief but create new and serious problems; (3) the Navy leadership style continues to be traditionally authoritarian, which appears to be out of touch with the attitudes of today's youth; and (4) ships missions may be too general-purpose, trying to be all things to all people, resulting in turning off our youngsters who have to execute them.

Our solutions to this problem are:

1. Revamp our recruiting process to get away from the Madison Avenue approach and tell it like it is. How "it is" is not necessarily bad, but it is definitely different from the way it is being portrayed.

2. Strengthen the Leadership and Management Education and Training (LMET) program, which needs support at the highest levels.

3. Improve boot camp—don't cut corners here or we'll be sorry later.

4. Provide indoctrination as soon as the sailor reports aboard ship; and reinforce it through the "I" division (Indoctrination Division). This concept is slipshod on some ships.

5. Conduct R&D on the person-job fit. In other words, find out if we're too high in our selection requirements, resulting in well-educated sailors performing jobs that are dull for them.

6. Conduct research on the redesign projects and support what comes out of this research.

7. Conduct R&D on habitability and its impact on sailor well being.

8. Consider modifying the mess and berthing facilities for the juniors and seniors to provide for greater interaction between them.

9. Evaluate and strengthen general education programs such as PACE and BOOST. As it stands now, we may lose some of these programs.

Problem three is excessive personnel turbulence at all levels. Some of the contributing factors include the fact that the Navy structure reinforces turnover, because of the required ticket punching. The Navy still assumes that officers have to be generalists, at the cost of creating technically incompetent people. Even though we "talk a good line" of subspecialties, we still very much emphasize the generalist. There is no corporate memory as a consequence of this personnel turbulence, especially at the flag level. Consequently, there is conflict between the needs of the Navy and the needs of the individual. There is also equipment turbulence. Too much new gear and frequent modification fosters turbulence among personnel.

Solutions are as follows: (1) modify career patterns to provide for vertical mobility in narrow specialties, (2) cut down on arbitrary permanent changes of station (PCS), (3) reward people for staying with a ship, and (4) conduct R&D on the payoff of having a highly stabilized ship's company similar to those they have in Britain.

Problem number four is the perceived conflicting priority between mission and people. One then becomes more vital than another, rather than dependent on each other. One of the practices contributing to this problem is that, while the commanding officers are held accountable for such things as nuclear weapons inspections, they are not held accountable for things such as the Command Action Plan (CAP). The output of the Human Resource Management cycle is a CAP, and there is no accountability on the part of the commanding officer for that CAP up the line. With equipment and training becoming more complex, the reward and appraisal systems emphasize mission accomplishment over development of human resources. Moreover, many officers perceive the Human Resource Management cycle as not being mission-oriented when, in fact, it is very much mission-oriented. Further, personnel programs tend to get overlooked by Congress. Recommendations include redefining the Navy's mission to include people; balancing short-term and long-term factors in the reward and appraisal system; investigating the human resource accounting techniques that we have heard about here; improving Congressional testimony regarding people (including collection of hard solid data that we have from the Human Resource Management Survey); and holding commanding officers accountable for their Command Action Plan.

The last problem is the 55-hour workweek in port. The recommendations are as follows: (1) conduct long-range R&D on applications of automation to alleviate some of the human tasks at sea and in port; (2) hire civilians to perform inport tasks to relieve the 55-hour workweek; (3) convince commanding officers that people are no longer free goods—that overworking them drives down reenlistment rates and may even cause sabotage or desertion; and (4) consider doing R&D on a model along the lines of that of the Merchant Marine. In other words, let them go on leave for some significant amount of time while in port. Lastly, we want to emphasize that we would like to see some innovations, some pilot projects to try out some of these concepts.

Group 3. Operational Units–Surface and Submarine: CDR Dana French, USN, Bureau of Naval Personnel

Group three had the same task as Group Two; that is, surface ships and submarines. We also opted to deal mostly with surface ships. We found nine problems, and we identified them in the following priority.

The first was fairly general: it concerns low productivity resulting from low job satisfaction and low motivation in the surface Navy. At our second level of priority, we had three different problems that seemed to be linked together. The first involves equipment problems, in terms of the way they impact on productivity. This includes the reliability of equipment, its maintainability, and whether it is efficiently designed for maintenance. The second is the externally imposed requirements imposed on commands, such as inspections. The third is excessive working hours. The next level of priority is dysfunctional leadership and management practices. The next was habitability factors, which Master Chief Evans was able to address quite interestingly, having just returned from the Fleet Habitability Conference in San Diego. The next one was a peacetime underway/in port ratio that is demotivating. The last two are misutilization of trained personnel and training deficiencies in terms of the system.

We came up with a general point we wanted to make that picks up on all of the discussions that we have heard. It may very well be that many people would like to conduct the kind of productivity measurement that everyone seems to want. It may very well be that they do not know how. Accordingly, we felt that there should be a specific office or offices at the Chief of Naval Operations level tasked to establish a sound and consistent way that the Navy can use to measure productivity at the various levels and in its various forms. Certainly there should be participation in doing that, but when everyone is in charge of motivation and productivity, that means that no one is in charge of it.

With regard to our first problem about low job satisfaction, one suggestion was to compare it to that in

the Coast Guard, which is a Navy in microcosm, smaller than the New York Police Force. They seem to have far fewer problems in terms of job satisfaction in a similar line of work.

We also suggested that a large-scale substantive analysis be mounted to compare good ships to bad ships. Let's identify the ships that are effectively performing and those that are not, and try to identify specifically what those differences are.

Along with Group 2, we also mentioned that it is important that everyone in the unit knows what the Navy's mission is, what the ship's mission is, what the command's goals are, and how their own job relates to the mission and goals. That job is not necessarily just the captain's; it is the responsibility of all supervisors.

We also talked about reviewing the design of jobs, and beyond that, reviewing the organizational structure on board ships. The current organizational structure used on surface ships predates 1900. As far as I know, it has never been the subject of a substantive overall review as a large system. There may be a better form.

We also discussed the "I" (Indoctrination) division for awhile and felt that, in ships where the "I" division works, personnel seems to be much more satisfied.

Lastly, we spent some time speaking of the instability of our benefits. It does not seem to matter whether the benefits are good or bad—it is just the fact that they are unreliable and unstable. This may be one of the factors that is causing a lot of people to choose early retirement.

In the second level of priority—where we had the three problems clustered together (equipment problems, externally imposed requirements, and excessive working hours), we had these suggestions.

There are some programs going on at the OPNAV level—particularly with regard to material—PMS306 programs that are directed toward the kind of hardware problems we talked about, such as maintainability. We felt that those programs ought to be identified as being connected with productivity and motivation and accelerated where possible.

We also pointed out, in terms of excessive requirements, that some formalization of a cosigned check method—some way to force people to integrate requirements so that they made sense one with the other—should be instituted. Another recommendation was that we ought to consider, analogous to legislation, using something like sunset clauses on all externally imposed requirements on units. Each requirement would have a particular deadline stated that says, after this date, if you still want this report or you still want to do this inspection, you are going to have to go up and renew it, not just say that it should be continued. I personally made a recommendation that we ought to let the CINC staff assign a sunset clause to the things that come in from above.

We felt that another part of the excessive requirement problem was, again, when everyone is in charge, no one is. We felt that someone, probably OP-01 and warfare sponsors together, should be required to aggregate all of the requirements that are imposed on their units. OP-03, for example, should be interested in that problem as well as the CINCs, and they could aggregate and keep track of all the requirements in terms of the implications for productivity and motivation. To that end, the suggestion was made to have a format included in all reports where the people who make out the reports feed back how many manhours were expended in filling out the reports. We felt that all the inspections that are conducted obviously ought to be renewed and validated. We also pointed out that many inspections are not specific in terms of standards; thus, the unit is required to expend more energy than is required because they do not know how much is enough.

We felt that the warfare sponsors had to be more specific in establishing the formal required operational commitments and to prioritize them more. We found out from the Commanding Officer of the Navy Manpower and Material Analysis Center, Pacific that our task analysis to determine how many people we need to man ships is all predicated on what they are supposed to be doing rather than what they really are doing. That seems like an area that ought to be investigated.

Lastly, we talked about shore support for units when they were in port. We generated some ideas on how that could be done, such as relief or contracting some assistance. We recommend that such a list be generated by people expert in this area and some serious look be taken at it from the point of view of productivity.

Group 4. Operational Units–Ground Forces: COL Vernon Sones, USA, National Defense University

Along with Bill Mobley, I facilitated Group Four, which was oriented to operational units of ground forces. We chose six specific problem areas to report on, although we generated 17 problem items. The order of presentation is the order in which we prioritized them as far as solution benefits are concerned.

I will read the first six, and then go back to the first three, and comment on those as they relate to the relevant factors and to our recommendations. We defined the term of ground units generally as those in the Army and the Marine Corps, recognizing that there are, in fact, some ground type units in the other services.

The first problem we looked at was the inadequacy of the measurements of individual unit effectiveness. Such measures are necessary as criteria in evaluating the impact of various motivation and productivity enhancement strategies, in establishing realistic goals, and as a basis for both intrinsic and extrinsic feedback, rewards, and sanctions. This issue is basic to all the strategies that orient themselves to productivity and motivation.

Problem number two is an unknown tradeoff of effects among social motivation, which is induced by leadership and group loyalty; intrinsic motivation, which is induced by job design; and extrinsic motivation, which is induced by incentives such as wages and benefits.

I will temporarily pass over problem number three and come back to it later.

Problem number four is maintaining the proficiency of ground units in an operational environment when the forces cannot be efficiently or effectively exercised. This goes back to General Johns' comments on Monday, when he talked about preparing a team in practice for a game which it may never play.

Problem number five is that performance in ground combat units is a function or more than merely the sum of the individual performances. Unit cohesion is a critical factor in determining successes in combat. There is a failure of the organization to fully develop motivational properties of this phenomenon.

Problem number six is a lack of knowledge of those factors which influence changes in motivation and in productivity. As the individual transitions from civilian life through the recruit training program, he has problems making this adaptation, and it is reflected in the way we integrate our training and our preparations for these people to make the transition from society into the military unit.

Those are the six problem areas that we considered in detail. I would like to now speak to the first three. First, having to do with the measurement problem, there is a lack of research on the criterion problem. There is a selfserving aspect of reporting. There is an absence of clearly defined markers for military units, ground units especially. We might add that it is one thing to measure maintenance, and another to measure time steamed by ship or hours flown by an aircraft. It is quite another thing to try to measure the combat effectiveness of a military unit. There is the feeling that subjective judgments are more effective and more adequate than objective standards. There is clearly a resistance on behalf of many of the operators in the field to be measured for whatever reason, and there is, of course, the demand on the leader's time—the manager's time—to administer reporting procedures. If you establish reporting procedures or criteria, somebody has to monitor, and that is very time consuming.

I will only present a couple of the representative recommendations we made. First, devote more research, resources, and priorities to this issue of measurement. Second, emphasize readiness and responsiveness criteria rather than combat since the latter cannot be adequately simulated. What we are saying is that, too frequently, we try to measure the combat effectiveness of an organization and we do it very superficially. Finally, develop more standardized tactical tests to supplement the systematic measurement of personnel readiness, equipment readiness, and training objectives.

Problem number two had to do with the different ways of motivating people. The problem is fostered by a lack of research that looks at the way these sources of motivation impact on ground units or military units. Simply stated, it is easy to talk about motivation in a leadership class. It is quite another to train and equip people to be perfect administrators and leaders. With that goes motivation and productivity.

Recommendations include doing research in this particular area of motivation. It would be very fundamental, very basic research. It is also risky. There is a sensitive political climate when it comes to research which is oriented to individual behavior. Everyone, including Congress, is most sensitive, and, therefore, it is very risky to try that kind of basic research. Nonetheless, it was our viewpoint that this kind of research should be done and very likely in a consortium mode; that is, by people who can work together in the motivational field and do so in the context of a military environment.

The third problem which I passed over earlier had to do with a very fundamental problem that our group felt very intensely about. It is the need to materially improve integrity and leadership at all levels, both military and civilian, and thus to remove a strong negative influence on motivation and productivity. We did not want to end on a motherhood and apple pie note. However, we clearly see factors that are pervasive and persuasive right now in society as creating an orientation which militates against an emphasis on personal integrity and good leadership. It is one thing to talk about it over a cup of coffee or in the passageways; it is another to teach it in class; it is quite another to practice it. We do not practice what we preach was the workgroup's viewpoint.

What recommendations can we make? Perhaps nothing more specific than to say those that are engaged in the research and measurement business should look closely at the redundancy and multiplicity of reporting criteria and procedures which often generate negative reactions, falsification of reports, and the view that it really does not matter. We had someone speak yesterday about the 55 inspections that a ship underwent over a 60-day period of time, which only encourages a reporting procedure which, in many instances, is false. Therefore, if we had nothing else to recommend in this area, it would be: Let's be very realistic about what we measure, what we ask to be reported on, and minimize it.

Group 5. Research and Development Units: Dr. James Probus, Director of Navy Laboratories

In identifying the problems that influence the productivity of the Navy's R&D Centers, our group agreed with many of the assessments and conclusions of the principal speakers who have addressed this conference. However, not all of the problems which have been mentioned are to be found in the laboratories; nor are all of the solutions which are being considered appropriate for the laboratories. *Someone else's solution often becomes our problem.*

Specifically, we agree with Mr. Paz's assessment of some of the general problems which affect our productivity, such as the problems that arise from "Transitional Management"—the changing administrations and military leadership. For example, a few years ago, the R&D Centers were encouraged to compete for any and all kinds of projects, regardless of their general mission assignments. Today, the emphasis is upon a cooperative effort; upon the goal of again developing centers-of-excellence and of concentrating the efforts of a given center upon doing those things which it can do best. Such radical changes in policy *do* have an impact upon the productivity of these activities.

With respect to the issue of military/civilian relationships and assignments of responsibility, the situation is different in the R&D Centers than in headquarters and in other Navy activities. Civilians *are* assigned both authority and responsibility for their programs. Yet the leadership tends *not* to be authoritarian or autocratic, but believes in and practices "participative management."

We wish to underscore the truth of another of Mr. Paz s observations:

> If you wish to destroy a person, give him lots of meaningless tasks to do.

We in the R&D Centers have been working aggressively to reduce the numbers of small, disconnected tasks which are assigned to the R&D Centers in the belief that this *is* an important way to increase the "productivity" contribution which the R&D Centers can make to the Navy. Substantial success has been achieved in this effort through the implementation of the concepts of "Block Programming," and through the participation of laboratory personnel in the development of the so-called "Technical Strategies" for the Technology Base programs of RDT&E. However, further improvements are obviously possible and desirable.

I am glad to report that the general self-esteem of people in the laboratories is high, although morale is not necessarily high. The morale problem is becoming more serious because of grade freezes, reorganizations, the imposition of additional constraints, the requirement for more filling out of forms, reports, audits, etc.

Our group agreed with many of the ideas expressed by BGEN Johns, specifically: the importance of maintaining strong group identity; the pride of belonging to a given laboratory. We also share his muted concern about the problems and limited value of attempting to apply the so-called "scientific-management" methods to management itself—particularly as it relates to the management of creative and professional activities such as research and development. We appreciate the need to measure what can be measured, and to take such statistics into account when management must judge, decide, and lead. But many of the most important components and factors involved are not, in fact, measurable; many intangibles are involved and many uncertainties. Yet, the latter tend to be discounted by the analysts and economists who are often the driving forces behind the push to measure, and who, in government, are often in positions which allow them to use the "measures" and the statistics to buttress and support their judgments over those who are responsible for the actual operation and productivity of an activity.

We also share BGEN John's concern about many of the shortcomings of "technocrats" who become managers, supervisors, and administrators without adequate training, skills, and experience in human relations and other necessary functions. We *are* doing something about this within the R&D Centers. With the assistance of OCP, we are establishing a coordinated system of performance ratings, selection criteria for promotions, and professional development of our personnel who wish to climb the management-side of the ladder of advancements.

Our group agreed also with RADM Ahern, that "You don't motivate people by measuring them"—particularly not the creative, self-starter, professional groups.

His point that we should find a way to reward people who succeed in *reducing* the number of people under them is an important one. In practice, the opposite occurs under present civil service rules and regulations—at least as they are being enforced.

We support David Bower's observation that productivity often tends to suffer when higher authority responds to criticism, a crisis, or contingency—"The Contingency Paradox."

We believe that it *is* true that the most effective groups tend to be the ones that are the less autocratically led and managed—the less rigidly directed ones. Yet, in times of general criticism and crises, higher authorities frequently move toward more autocratically divided systems and practices of management—rules, stronger central controls, more rigidly and uniformly applied, with less wise discrimination.

Our group certainly agreed with most of Dr. Clarke's (AT&T) comments and views. They are as applicable for the R&D Centers, in general, as for operating and production activities. Specifically, we wish to underscore and reinforce the following observations and findings:

1. Motivation is not the root cause of productivity problems.

2. Management by direction and control does *not* motivate—these are virtually useless methods in dealing with people whose achievement needs are paramount.

3. Motivation is enhanced when people:

   a. Experience meaningfulness.

   b. Experience responsibility.

   c. Know the results.

4. Factors favorable to increased productivity include:

   a. Functional completeness.

   b. Consistent situation, with respect to both "users" and systems.

   c. Power to act in a situation.

   d. Feedback.

   e. Necessary knowledge and skills.

   f. Supporting work environment.

5. Managers themselves *must* be the drivers behind the process.

We do *not* agree with Dr. Usilaner (GAO) that, "The key to productivity is measurement"—not in the case of R&D Centers or laboratories. We have measures, to be sure, which we employ ourselves and which we boast to others about, but they are neither the primary cause of, reason for, or key to productivity in this area.

The crucial question and problem that we face in the R&D community is that of attracting and retaining really creative and knowledgable people in peacetime when there is a multiplication of bureaucratic constraints, rules, and regulations; of "form-filling" work; and of all kinds of things which limit the *freedom* of individuals to pursue their profession, and the *time* which they can devote to it.

We do not lack facilities, although there are additional investments that can be made which will have a high and immediate payoff in our productivity; e.g., in the further development and use of ADP equipment and programs for design and engineering.

But our major stress must be on *people*—on recruiting, retaining, and rewarding them—not on process, systems, or structure.

We must make it possible for them to pursue their chosen profession; assign meaningful responsibilities and programs to them; minimize the extraneous burdens placed upon them; and then recognize and reward their accomplishments.

This group of people is a highly motivated group, a group of self-starters who show initiative and persistence, and who ask only to be given the opportunity and the means to work on important tasks and programs. They thrive on responsibility and freedom. *Motivation is not, in general, our problem!* Rules must be flexible enough to permit a wise balance of youth and age, freedom and discipline, and progressiveness and conservatism.

Our group wishes to call attention to the fact that the purpose of the R&D Centers in not *solely* to produce on a day-to-day basis. We also have a responsibility that is a "readiness" responsibility—to be ready with the scientific and technical knowledge, know-how, and skills necessary:

1. To solve system problems and enemy countermeasure problems which come to light during combat.

2. To exploit foreign material.

3. To assist in the evalution of formal competitions and in the selection of proposals from industry.

4. To provide objective scientific and technical advice and counsel to higher levels of authority.

The "fire department" metaphor is, in part at least, an appropriate one to keep in mind.

We recognize that our productivity and effectiveness are influenced in part by sociological and organizational factors. For example, in our technology base programs, we find that there are disciplines and groups that have not been well "tied together" or jointly planned—which would have been more productive had they been. A specific case involved groups that worked on "materials," "structures," and "manufacturing." When these groups and disciplines were effectively brought together to plan the R&D programs for new submarine materials, there was a marked focusing of the effort, and the interdependencies helped to establish the specific goals and priorities of the work to be pursued. So there is undoubtedly much more that can be done to increase our productivity by this kind of joint planning and interdisciplinary communication and coordination.

We wish to express a growing concern about the present trend toward the *removal* of certain functional responsibilities from our activities—all for the professed purpose of increasing the overall productivity of the above establishment. We note the centralization of regional pay functions; the talk of centralizing Public Works functions and people, procurement, the control of audio-visual aids, personnel functions, "value engineering" responsibilities, travel and transportation, patents, reliability and maintainability responsibilities, comptroller functions, etc. And now there is to be a new group established to put somebody "in charge of

productivity." Now we recognize that economies may be attained by some of these actions, but many are also counterproductive because they set up, at the same level of authority, a growing multitude of relatively independent authorities and groups which issue conflicting directives, impose constraints and delays upon the performing field activities, and pose increasingly severe management problems for those who are assigned the responsibility for carrying out RDT&E programs.

Finally, we wish to say a few more words about "measures" and measurements as these relate to the RDT&E Centers. We *do* employ such measures to judge how well we are doing, and to tell others about our accomplishments. We report on our papers, publications, writings and reports; and our patents; on the number of professional committees on which we serve; on our awards and honors; on our program accomplishments; on the number of man-years of scientific and engineering services we provided to others, etc. All of these tell something about the R&D Centers and about their productivity. But such measures tell us relatively little, either singly or collectively, about the *value* of what is produced, or about the value of the *readiness* capability which these laboratories represent. Moreover, no two tasks or projects in RDT&E are ever identical; consequently, it is inherently difficult to predict the "output" of R&D, and the resources that will be required to accomplish a given task. Measures-of-effectiveness and logic itself have very limited utility in processes which involve highly creative and original work, including work which is strongly dependent upon intuition, knowledge itself, and chance.

Finally, the group sincerely believes that the productivity of the R&D Centers can be substantially increased by placing the labs under a "controlled reflex" mode of operation, and by either eliminating or modifying the civil service rules and regulations which govern the grade levels of professional personnel in the R&D Centers.

In summary, in our judgment, the primary factor or problem which limits or inhibits the productivity of the R&D Centers is *not lack of motivation.* Rather, the stress should be on the removal of the constraints upon our people which limit their freedom and their productivity. Otherwise, as has happened in the past, our most creative and productive people will leave at the first opportunity. Or their productivity will decline as they spend more and more time on less rewarding and less satisfying tasks.

Group 6. Acquisitions and Procurement: LTCOL Roger Manley, USAF, Air Force Institute of Technology, Wright-Patterson Air Force Base

Our focus was on system acquisitions. I am stationed at Wright Patterson Air Force Base, which is where our aeronautical systems division is, so we have considerable exposure to the Air Force's acquisition process. So I was like Alice in Wonderland watching and listening and participating with Navy colleagues talking about the acquisition processes in the Navy. From the start, we recognized that motivation and productivity were undoubtedly related. However, in our deliberations, we chose to consider them separately. Indeed, we focused primarily on productivity. We recognized from the outset that the system acquisition process is something different than producing widgets, that we needed some measure of effectiveness that was appropriate to acquisitions. I know this would sound like a copout to the gentleman from the GAO who spoke yesterday. Our group's discussion focussed on the Aegis weapons system. The decision to go ahead with that system was made in 1963, and it is now projected to come into the fleet in 1983. That's practically older than our B-52s—20 years. The group unanimously agreed that 20 years was simply too long. Therefore, productivity, to our group, seemed to be defined in terms of time. I offered, for the group's consideration, our complex model in the Air Force, the three-legged stool—the three goals of the program manager which are time, schedule, and cost. However, money was not a concern to the Navy people, not as big a concern as time. The message from the group members is their serious concern that it is taking too long to get a weapons system into the hands of the fleet.

Out of these considerations developed a theme that has been woven throughout the comments of our speakers, and that, I might add, ties in nicely with motivation. This theme is exemplified by terms such as micromanagement, too many nay-sayers, excessive layering, and so forth. With respect to acquisition, these terms mean that there is a large number of people in the loop, any of whom can say "No" or "Go back to the drawing board, Mr. Project Manager," but none of whom can say "Hey, you did it, go ahead, charge, get it done." We see the same problems in the Air Force. This has a terrible motivational impact on the people involved in the acquisition process.

This brings again into focus the organizational paradox which Dave Bowers mentioned yesterday: In a stable, unchanging environment, with a stable technology, an organization can operate at optimum effectiveness using highly standardized practices and directive management techniques. The literature is replete with evidence of this, e.g., Lawrence and Lorsch, Burns and Stalker, Joan Woodward, and the Tavistock researchers from London. Their counterpoint is that, in a dynamic changing environment where you have a complex technology, to be effective, you have to be flexible and you have to use participative techniques where you take advantage of the knowledge of the workers and a nondirective, nonprescriptive approach. Typically, organizations do exactly the opposite. When things get tight, you turn down the screws, and when things are going great, you loosen up. What is going on

now in acquisition is the same thing. Technology is certainly highly complex, the environment very dynamic—yet, we are turning the screws, becoming more directive and less flexible. It seems to be counter-productive.

Another problem is the 10-2-1 problem. This means that while it takes at least 10 years to bring a weapons system into the fleet, the tour of the project manager is normally 2 years, and the budget is on a 1-year cycle. There is a disjoint here; it does not match. The tour of the Chief of Naval Material is 4 years. His is an integrative position; that is, he must bring all these very important weapons systems together. Since there is no such integrative counterpart position that this man can experience before coming into that seat, it takes him 2 years to just figure out what is going on. By the third year, he has a feel for putting these programs and people together. By the last year, he can be productive. So he is productive for a year, and then he either retires or becomes a CINC. I might add that the interplay between the deputy and the commander is a very important relationship. Looking at the length of associations between the top person and his deputy, *Business Week* reported that 23 months is the standard tenure of a federal government agency head, and 13 months is the tenure between deputy and director. So why not a tour for the Chief of Naval Material of 6 to 8 years?

The last point is external legislation. For example, there is the Davis-Bacon Act, passed in 1931, to protect construction workers during the Great Depression. Construction projects that were passed by Congress to benefit construction workers in a local area were not having the desired effect because contractors were bringing in outside cheap labor. So the Davis-Bacon Act was passed, essentially to prevent this. Now, here it is 1978, and I think the Great Depression is over. However, we are still working under the restraints of that initial 1931 piece of legislation, and it affects DoD construction costs.

Group 7. Maintenance and Logistics Units: CDR Michael Midas, USN, Naval War College

Along with Bill Lytle, I moderated Group Seven, maintenance and logistic units. I hope to do some justice to the efforts of our group, which worked very hard to make a contribution to the conference objectives.

We started out looking for a definition of productivity. Mr. Wong from the Pearl Harbor Naval Shipyard said that, for 35 years, he has been looking for one. Our group decided to try that anyway, but we failed; we did not come up with one, except for quantity of output over quantity of input. However, we had a lot of problems in deciding what specific elements go into that. With motivation, we did better, coming up with one everybody felt comfortable with. We said motivation is the act of arousing and maintaining the desire and will of people to work effectively because they are committed.

After that, we had a brainstorming session to generate all the problems we could, and we came up with 43. We then grouped them into categories, and they fell into three.

The first category included organizational overregulation and decision-making processes. We had six problems in that category. Attitudes, trust, and leadership made up the second category, and in that one, we identified 5 problems. The third category included incentives and rewards, and we had four problems in that one. At that point, the group broke up, and the members chose which category they wanted to analyze.

The first subgroup dealt with organizational overregulation and decision-making processes. The group did not list solutions because they felt that the solutions really were in each of the individuals in the seminar—that they are the ones who will come up with them, the ones who will execute them. Our written report will list at least where, in the chain-of-command, other people could take appropriate action toward solution. I will read the problems that were identified in that first group, and some of the causes of those problems.

1. **Problem:** Communications are poor, parochial, inhibited, inconsistent, and selfish. **Causes:** Management rigidity, distrust, and unwarranted standardization.

2. **Problem:** Less and less time and energy are available to accomplish the primary mission because of the impact of peripheral, externally imposed requirements. **Causes:** Social problems, proliferation of inspections and assist programs.

3. **Problem:** Micromanagement; that is, the intrusion of higher level managers into the sphere of responsibility of lower level managers. **Causes:** Poor managerial selection and preparation, a lack of faith and trust.

4. **Problem:** Political decisions do not necessarily consider the real needs of the Navy. **Causes:** Decision makers do not know any better, decisions made respond to different drummers.

5. **Problem:** Lack of a long-range (8 to 12 year) plan at activity levels exacerbates organizational instability. **Causes:** Transitional management, poor support, primarily financial.

6. **Problem:** A perceived and real erosion of authority of managers, a perceived and real inappropriate authority chain and authority delegation. **Causes:** Proliferation of centrally directed programs and inept leadership by activity heads.

The next subgroup was the one working on the category of incentives and rewards.

1. **Problem:** No rewards for productivity improvement. **Causes:** No method of sharing savings—sometimes resources are even reduced in anticipation of productivity improvements; improvements viewed solely as a means of reducing employment; no meaningful penalty for failure to achieve productivity or even meet standards; little fear of competition.

2. **Problem:** Ineffective incentives/discipline system regarding the individual. **Causes:** Step increases are automatic rather than merit based; complex, slow and bureaucratic procedures for merit awards; *reassignment to meet workload is extremely difficult*; discipline process is so slow and cumbersome that its use is discouraged. The latter caused a great deal of discussion in our group, and many felt that some of the tools to attack those causes are in existence now and what is required is the commander's use of those tools.

3. **Problem:** Disparity between the two civil service pay systems. **Cause:** One system, the white collar, is subject to political interference.

4. **Problem:** Negative incentives for supervisors to reduce manpower. **Causes:** Rigid, unimaginative, and mechanistic classification procedures; tendency towards empire building.

The last subgroup dealt with attitude, trust, and leadership.

1. **Problem:** Lack of leadership by managers. **Causes:** The exploding technological changes on the world scene since the 1950's.

2. **Problem:** The dynamic social and value changes in our society in the 1960's and 1970's. **Causes:** Proliferation of management-oriented civilians in top-level DoD staff positions; promotion systems focused on rewarding managerial type performance; lack of leadership education programs.

3. **Problem:** Bold new initiatives that impact negatively on productivity and motivation. **Causes:** Short-time assignments; need for achieving a reputation in the short-term; lack of trust of new men coming in, especially political appointees; and the lack of knowledge of the organization by the new manager coming in.

4. **Problem:** "Not invented here" attitude. **Causes:** Self-pride, parochialism, myopic vision, lack of desire to learn what the new technique might be about, resistance to change.

5. **Problem:** Management's inability or unwillingness to assist the employee with respect to personal problems that affect productivity. **Causes:** In general, it is much easier for managers to solve a hardware, systems, or technological problem than it is to solve a personnel problem; and insensitivity to subordinates' real life problems (e.g., family-related problems, drug problems, alcohol problems).

6. **Problem:** Lack of shared commitment toward common objectives between (a) the maintenance activities and the customers, and (b) the maintenance activities and the R&D community. **Causes:** Lack of communication, failure to be specific and to delineate commonly shared objectives.

Our observations as two moderators were as follows:

1. The group could have effectively utilized another 3 hours debating some of the front burner issues.

2. We saw the group focus on their own broad system problems, such as higher level policy issues, micromanagement from above, excessive rules and regulations. We felt that these concerns were probably demanding most of our groups' normal attentions on the job and have an impact on *their* productivity and *their* quality of worklife.

3. We had a very interesting discussion on that first item under the attitude, trust, and leadership category. We perceived from the discussion that large amounts of time are required for management functions, perhaps resulting in a decreased focus on leadership.

4. In general, group members felt they were taking away thoughts and ideas which would benefit their commands with regard to productivity and motivation.

5. While the group was not cynical about positive action being taken on these identified problems as a result of the conference report, they expressed reserved optimism for that positive action.

6. Finally, in general, our group members all felt the conference was worth attending.

Group 8. Maintenance and Logistics Units: CAPT Gerald Jones, USN, Commander, Philadelphia Naval Shipyard

Our subject area was the same as Group 7's, logistics and maintenance. We proceeded in the same fashion as described by Commander Midas. Basically, we brainstormed our frustrations with the maintenance and logistics world, jotting down these as best we could. Then we went back and categorized them into five major problem areas, which I will cover at the present time, in order that we see the payoff benefit.

The first problem is that our system fails to adequately prepare supervisors and managers to carry out their responsibilities. We use canned training courses taught by training staffs or contractors which are more theoretical than practical. The training and development responsibilities are not clearly defined in our organizations, and they are not carried out. Our managers have abdicated their responsibilities in this

area to the training staff and contractors, and oftentimes managers do not even support the training program itself. First-level supervisors are selected primarily based upon their technical abilities or their trade skills, not on their potential as managers or supervisors. Some of the older supervisors and managers are handicapped due to their inability to accept change in a changing world.

Recommendations we had in this particular area were:

1. Require top and middle management to actively participate in preparing and developing their subordinates, making it very clearly their responsibility.

2. Restructure locally the mandatory 80-hour supervisory training into a practical, pragmatic course taught mainly by the operating supervisors and managers of that activity.

3. Conduct additional seminar sessions for first-line supervisors of different shops and different divisions who must work together to break down shop division parochialism and other communication barriers that exist.

4. Ensure communications throughout all levels of the organization on policies, objectives, and goals—which we feel are missing.

5. Provide all levels of supervision adequate practical knowledge of the importance of positive motivation of their subordinates.

The second problem that we addressed, grouping many frustrations together, is quite similar to the one that Commander Midas mentioned. Motivation and productivity at all levels are reduced and significantly inhibited by past and continuing growth of undue centralization of all types of controls. We made this very general because, while we started out saying that it appeared to be always coming from up above us—from the Washington scene or Congress, we realized that the same thing occurs at each and every level of supervision and management—even within our local activities.

Factors which foster the problem are:

1. Technological advances, especially the rapid advance of automatic data processing and other communication systems.

2. Lack of defined objectives and requirements at upper levels.

3. Inaction at lower levels.

4. Big staffs and additional layering.

5. Lack of clearcut and consistent objectives and goals for the organization.

Recommendations include:

1. Develop specific objectives, policy, and procedures that are proper at each level and hold subordinates accountable.

2. For each control or requirement instituted, set a finite timeframe for its execution; thus, it will be self-destructing rather than being institutionalized forever.

3. Place a moratorium on new additional controls.

4. Conduct trials at selective activities in an attempt to reduce or eliminate various controls.

The third problem is insufficient individual or group accountability at all levels through the organizational structure. Fostering causes are:

1. The employee evaluation system is inadequate and cumbersome; people are not adequately trained to use it; employees lose faith in it.

2. Due to the complexities and institutionalized behaviors which we have developed, an impersonal relationship has developed between supervisor and subordinate.

3. Pay, rewards, and punishment are not sufficiently tied to performance.

4. Task identity, task relationship to the whole, and task understanding are inadequate.

5. Employees do not clearly understand what is required of them.

6. Currently available tools are not used by supervisors to motivate employees.

Recommendations include:

1. Reform and simplify the system to clearly define and assign accountability.

2. Train personnel in interview and intervention techniques.

3. Redesign work to provide employee identification with and understanding of their task in its relationship to the whole.

4. Reward and punish employees for acts or performance based on specific known and understood criteria.

5. Monitor this new procedure to ensure that it is adequate and properly utilized.

The fourth area is command turbulence, which has several causes. Short-term commanders burn out the human and material resources of the command. To compete for promotion, they must be innovative, do something different to stand out immediately, causing panic and crisis management. Personnel develop apathy and wait out this aggressive commander. Military and civilian interface problems also contribute. Military men may push the civilians aside and do their jobs, or civilians may abdicate their responsibilities to the military. Interface problems between producer and customer commands also contribute to productivity loss.

Recommendations include:

1. Assign commanders for long enough terms so that they will be accountable for the results of their actions. Further, assign commanders who are especially qualified to improve activities in terms of specific types of performance and leave them there until they succeed or it appears they are failing.

2. Consider assigning military managers to activities with heavy civilian populations as a team with the commander and major department heads to be complementary and compatible with one another and also with the civilian managers.

3. Ensure that the producer-customer relationship is fully understood by both, including its influence on the productivity of both.

The last item we have is very important and it encompasses many of those listed above. It is the demotivating effects when subordinates perceive management inaction in problem areas that decrease their ability to be productive. Things that foster this are (1) inadequate communication between successive levels of supervisors and subordinates, (2) centralization of decision-making authority and responsibility, (3) insufficient involvement of subordinates in developing organizational plans to deal with organizational problems, and (4) the preempting of management attention and concern for subordinate training/development by the press of daily work. Recommendations are:

1. Develop middle-management skills for involving subordinates in actual planning for goal development and attainment and for problem identification and resolution. This includes sharing of information with subordinates, and delegating to subordinates.

2. Improve formal communications about goals and objectives of the unit.

3. Develop a climate that permits commanders to accept their own mistakes and encourages them to develop mutual accountability with subordinates.

Group 9. Staff Support Units: Mr. Samuel Connor, Roberts Associates

Our mission was to explore and examine the productivity and motivation within the staff support unit. We started by first quickly defining what we meant by staff support units. It boiled down to a very simple definition: those people who support the widget makers. We are talking about anyone who operates to support the group that is concerned with the major mission of the organization. We focused on the uniqueness of the staff support unit and dealt with the uniqueness that affects productivity and motivation within those groups.

We had six major concerns, arranged in order of priority based on solution benefit. First, there is the pecking-order phenomenon, which means that people in staff support units are made to feel like second-class citizens relative to employees who are in activities which fulfill the organization's major mission.

Number two is the difficulty in relating the contribution of a staff group to the overall mission of the line organization. We're talking here not only about the difficulty for the individuals within the staff group to relate and measure their contributions, but also, in some cases, the inability of the line command to recognize exactly what contributions the staff is making to the overall mission.

The third major concern was the whipping boy syndrome. As a result of the proximity of the staff to the command (and sometimes the lack of understanding of their contributions), there is a tendency to whip the staff when missions are not completely accomplished. This will lead to staff behaviors for avoiding punishment; thereby causing the staff to take a low profile and to avoid risk and responsibility. This, of course, affects productivity.

The fourth point was concern for job security. Staff groups are usually the first to lose people when there is a cutback. As a result, people within the staff groups, recognizing this, will often behave in such a way, consciously or unconsciously, to slow down or spread the work to show they are indispensible to the command. Job insecurity also leads to problems of worry and anxiety within the groups, which again leads to a decrease in motivation and productivity.

Fifth, staffs get lower priority in capital investment. When money gets tight, staffs are not the ones to get it. Without the funds and resources, there will obviously be less productivity.

The sixth and last concern was what we call the loyalty conflict; that is, those members of a staff or support group who are the professional specialists tend to align themselves more with their specialty than to the overall command. They therefore sometimes follow their own goals and objectives as opposed to those of the larger organization.

We recognized that perhaps we had identified one very major cause and that the others were basically effects that emanate from that cause. The one major cause that we saw was the difficulty in relating and measuring staff contributions to the overall mission and accomplishment of the line unit being supported. The recommendation, therefore, was for staff units to develop goals, objectives, and tasks that are in accordance with and consistent with the mission of the line activities. This is going to require establishing procedures to measure and control the progress toward the goals, objectives, and tasks. All levels of staff must be included in this process. Also, it requires providing appropriate feedback to all personnel in the organization so that everyone understands just what contribution they are making to the overall mission. We believe that, if we can do that, we will reduce, if not eliminate, some of the other concerns that I have already mentioned.

In summary, I don't think we broke any new ground, but, rather, we helped to focus attention on the problems of staff support groups and to order our thinking as to some possible actions to be taken.

Group 10. Headquarters and Higher Level Staffs: Mr. Irving Foote, Naval Material Command Headquarters

This morning I saw ADM Westfall, and he articulated something that has been a concern of mine. He said that there is really a dichotomy that persists here. Those people who are responsible for productivity improvement continue to be concerned about how it can be done, and whether it can be done. Those who are not responsible for such improvement insist that we must do it—and measure it.

With a great deal of humility, we present our findings and recommendations. Why do we say that? Because we want to make clear the fact that any productivity improvement or enhancement must be done at the local level by the supervisor working with his subordinates. You cannot put out a dictum from the headquarters that there shalt be productivity enhancement, and it will happen. So, in approaching our job, we wanted to find out those things that headquarters could do to help. We also tried to concentrate on those things that we believe could be done within the Navy itself. We generated 30 problems which we categorized into problem areas.

The first was a lack of understanding and acceptance of the contribution of behavioral science to enhancing motivation and productivity by people at policy levels, senior staff members, first-line supervisors. Our recommendations are to establish some additional training in productivity and motivation and to do it as realistically as possible, using people who are successful managers as instructors. We should try to make our training less theoretical and more practical. This should be done first at the senior management levels—not only in the civilian sector but also in the prospective commanding officers' course and in the flag officers school. While we believe that there have to be training initiatives, we don't think that is enough. We think that the more practical method would be one that Dr. Clarke from AT&T mentioned; that is, to conduct some trials and demonstrations, and if they are successful, we can spread the word to other places.

Now the second of these problems that we talked about is that productivity improvement, as perceived, doesn't enhance people's careers. For example, officers are rewarded for carrying out the major mission, but not for their improving productivity. How do we get around this? One recommendation is to include motivation and productivity enhancement in the selection criteria for managers and officers. Another recommendation is to staff the Human Resources Management System with the best people, with some of the top line officers. Why? First, to expose them to the system so they can then carry the word; and, second, to help in the perception that productivity and motivation enhancement will not result in a deadend career. The last recommendation was to initiate some aggressive productivity programs, such as Dr. Clarke mentioned.

The third problem area is that there are few incentives and too many disincentives, not only for the supervisor and manager but also for the employee. Our recommendations here are that we try to extend the present award system and to use it as fully as possible, including developing innovative techniques like the Long Beach Naval Shipyard illustration that was given to us earlier. Also, a policy should be established that requires the Navy to share validated productivity savings with the units that created these productivity savings. Finally, selection for senior service schools should be based in part on productivity improvement ability.

The fourth problem area has to do with policies and practices that hinder rather than help motivation and productivity. You notice that we are trying to concentrate on those things that can be done by headquarters. We feel that headquarters should issue strong policy statements supporting productivity enhancement. Also, headquarters should review their existing policies, like the "one-best method," standardized procedures which govern their subunits which can stifle flexibility. So we would like to see policy statements that bend a little and give more freedom to line commanders to do their own thing. We want policy which supports fast payback because we do not want to lose its benefits. We also want policy statements that support quality of worklife. Second, organizations should have a focal point for productivity enhancement. By this, we do *not* mean a centralized point; rather, we mean that a focal point for productivity improvement should be provided in SECNAV, CNO, CNM, the Systems Commands. Let me repeat, we do not want to centralize productivity; we do want to see that headquarters helps and not hinders. Third, we should use the joint logistics commanders to share information about productivity enhancement across the three armed services.

One thing I have not learned here is how do we measure productivity and what do we measure in the headquarters units? Do we measure the number of weapons systems we get through the DoD approval chain or the number of times that we talked to the GAO auditors? I do not know what we can and should measure. I do know that we have learned a lot in this conference. Let's see if we can start applying it.

SUMMARY ADDRESS

Dr. Edward E. Lawler, III
Battelle Memorial Institute and University of Michigan

In thinking about what I have heard at this conference, both during the formal sessions and informal discussions, it seems to me that there are four issues that people have been concerned about: what the present situation is; what we do know about how to improve the present situation; what we do not know or what we need to know to improve the present situation; and finally, what needs to happen.

I would like to address those issues in turn, starting out with what I have heard about the present situation. That seems to be where there is the greatest unanimity. People have no problem describing the problem. There is consensus that there are problems everywhere and that motivation is poor. I noticed particularly the assumption that motivation is poor at the lower levels in this organization, much worse than at the higher levels. I did not hear people here saying that they are not motivated; it is always people below them. We might learn something from that. The causes of this low motivation were attributed to everything from spare parts to lack of rewards contingent upon performance, lack of goals, alienation of the workforce, and changing character of the workforce. There was fairly high agreement that all of those were true in at least one situation and many of them were true in a number of situations.

To me, hearing those problems is not surprising. What did seem surprising to me at times was the reaction that these are unique problems for the Navy or for the military or for the government. I am sure that those of us who are here from academia or from industry have heard all of those problems before, in nonmilitary, nongovernment organizations. All it takes is a little bit of size for an organization, and those problems emerge. They are automatic. They are gifts of the system, if you will. An example is Admiral Ahern's discussion of control systems. I heard that same discussion 10 years ago in AT&T. I was attending a meeting of one of the operating groups there, and they were last in every single measure that AT&T took on performance. The manager of that group said, "It is true that we're lowest on service delivery and we have the highest cost and so forth, but the one thing we have going for us is that we report our data honestly." Does that have a familiar ring? And he went on to say that if only the other people in the organization would be honest, he was sure his group would be right up there at the top.

So they are not unique problems, and there is an important implication in that. It is that you can learn something from what the AT&Ts, the Polaroids, the Texas Instruments, and the IBMs of the world have done. Not necessarily to take their systems and directly install them without modification. The last thing you need to do, for example, is to take the AT&T job enrichment program that was described here and simply lay it on the Navy. However, there is something to be learned from that approach and from a lot of others. It seems like the Air Force is already running full speed ahead with a job enrichment approach, for example.

There also seems to be fairly high agreement on where we would like to go as a system. Obviously, everybody would like higher productivity, higher motivation, more commitment, less alienated employees, etc.

Now the question that was raised is: Do we know how to get from here to there? Do we have a very clearcut map of a route that would take us from our present situation in motivation, productivity, material, and supplies to a better situation? My answer to that, after listening to the discussion, is: only partly. We know some things, but we need to know a great deal more. Part of the lack of knowledge is due to a lack of research and of theory in the area of motivation, and part of it is just due to a lack of understanding on the part of all of us of how complex organizational systems operate. Changing large bureaucratic organizations is very difficult and something about which we do not know very much.

In fact, I am tempted to say that we know more about what not to do than what to do. I had no trouble sitting down and listing all the things that we should not do, things that can indeed be learned from the IBMs, the Polaroids, and other industrial organizations. Let me just give you a list.

We know quite clearly, for example, that very narrow, imposed measurement programs produce large amounts of counterproductive behavior, especially fudging behavior. Narrow measurement systems tend to focus behaviors on what is measured and to ignore other important things. We also know that short-term programs get resisted. People sit quietly by and wait for that program to pass for the next one. We also know that narrow programs, programs that focus only on one aspect of the work environment such as the pay system, job design, or the information and control system, usually end up in dead ends because they do not look at the organization as a complex interrelated system, which in fact it is. When you start fiddling around with just one thing, say job design, in a complex interrelated system, if you are not prepared to go and look at other aspects, you are going to do more harm than good, because the system usually is in some kind of balance even though it may not be in the best balance.

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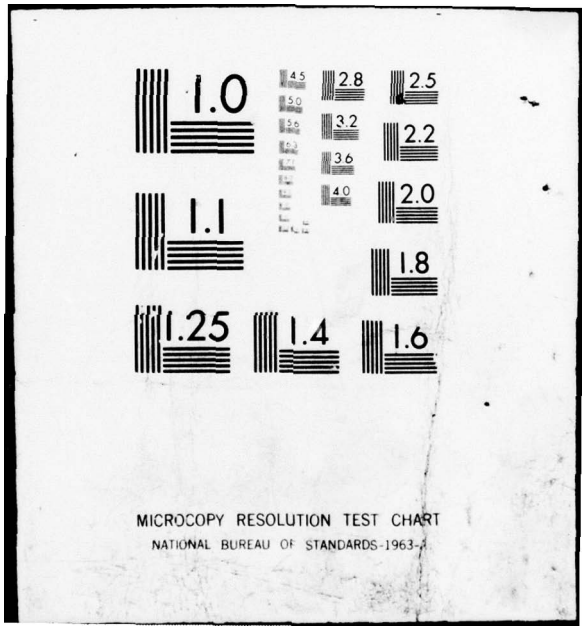
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NATIONAL BUREAU OF STANDARDS-1963-A

We know that there are no universally good programs. For example, job enrichment, or certain kinds of information systems or productivity measurement systems, may, in some situations, be great; in other situations, they just do not fit.

So we know a lot of things *not* to do. We also have identified, I think correctly, a number of important levers for change. We know what some of the key attributes of organizations are that impact on productivity and motivation. I have developed a list of some of the ones I heard this morning. We know, for example, that the information and measurement system is critical—it can be a strong force for either good or bad. We know that performance appraisal is a critical issue in organizations. We know that rewards, how they are distributed and who gets them, are critical in influencing motivation. We know that job design, how you put the task together, and the kind of assignment you make to somebody have a strong impact on employee motivation. We know that the overall structure of the organization, the number of levels of management, and the degree of centralization and decentralization are critical. We know that leadership behavior is another central factor in influencing motivation and productivity. The structure of work groups, in the sense that people are being cooperative, supportive, and interactive, is critical. We know that providing people with knowledge about motivational techniques and human behavior is important. We know that the interface between the social system and the technological system is critical and must be considered when people are buying new equipment, designing jobs, and hiring people. All too often, the technology goes one way and the human system goes another; as a result, when it comes time to put the two together, they do not mesh. We know that selection is critical—selecting people who are appropriate to the technology and the management system that is in use.

We know all of these things are critical. What we often do not know is how to put all of those parts of the puzzle together accurately and effectively in a particular work situation. That is what most organizations are struggling with, particularly large ones. What we would like to do is to put those pieces together so that the individual worker has a sense of what the enterprise is about, so that they can get some sense of task fulfillment and motivation. We know that, if we can produce that kind of situation, we can get motivation and productivity. What we do not often know, is how we put together all the pieces in a way that will produce that sense of excitement and enterprise for the individual worker. We know, for example, that, in large organizations, it probably has to be done at the micro level, the ship level, the unit level, or the detachment level. It is very hard for people to identify with such things as the overall goals of the Navy, of a university, or of AT&T. We have to bring it down, and we have to create a micro environment that has the right characteristics for the individual.

How do we go then from this amount of knowledge to better practice? First of all, we need to translate the enthusiasm, interest, and commitment that I have seen at this conference into some action over the next 5 to 10 years. I believe that the kind of changes you are talking about and aspiring to will take that long. It must be long-term in spite of the fact that people will be rotating from job to job, that there will be problems in maintaining continuity of funding, etc.; that is the kind of time perspective you need to adopt in changing human systems. If you notice in the talk given by Dr. Clarke from AT&T, for example, a great deal of confidence seems to be emerging that they now have a handle on how you design jobs. That whole program started in AT&T in the middle 1960s, so it is already over 10 years old. Yet, they are just now beginning to get into some of the complex issues that are involved to get a methodology and a technology for implementation. So there are no quick fixes; it is a long-term, slow process that involves some new knowledge, a lot of new technology, and a lot of organizational and institutional learning as to how you use the technology.

Another thing that needs to be kept in mind is the fact that there is no single key or change that affects productivity. That has very clearly come out of the discussion today. Job enrichment by itself is not going to do it. Pay contingent on performance by itself is not the answer. What is needed is a broader systems view of how all the pieces interrelate to create an effective work environment.

How do you do that? Well I think you need to adopt a kind of experimentation orientation toward workplace change. We need R&D, we need technological innovation, we need inventiveness on the part of our work organizations. The only way you can do that is to free up various parts of the organization to experiment and try things. Unfortunately, we do not seem to have much tolerance for that at the present time in our society, particularly in our large organizations. I think we have to develop that; we have to develop the willingness to innovate, to try new things. We must develop the spirit of innovation which tells people that it is OK to experiment and, if it works, you should measure it, and disseminate it. If it does not work, go on to the next experiment. This argues for a cycle of diagnosing a situation, trying innovations, assessing, improving, measuring, trying again, further perfecting, and disseminating with the expectation that what works in one place is not necessarily going to work in another—there are no universal cures. The "not invented here" phenomenon may be very real in workplace innovation—that a good innovation here is not necessarily a good innovation for another place because it is not appropriate there. We need a tolerance of that kind of diversity. That is a hard thing to develop. It takes very strong leadership, both on the R&D, technological innovation side, and on the management side, to tolerate that sort of thing and to reward people who do that.

Finally, I am tempted to conclude with the thought that those who are in top organizational positions should always ask themselves the question, when they make a

decision about something seemingly unrelated to motivation, what the impact of that decision is going to be on motivation. What is the impact of changes in hours of work or personnel practices or a new piece of equipment on the relationship that an individual is going to experience between his or her performance and rewards? Our organizations do not automatically gravitate toward a condition where low motivation exists, where rewards are not contingent on performance, and where jobs are not very meaningful. They get there through many individual decisions that are not seen as related to motivation and productivity but that end up having an impact in motivation and productivity. Over time, in combination, and as a part of a complex system, they slowly erode things like the relationship between pay and performance, the meaningfulness of jobs, etc. I do not know how you bring that about. I suspect you do it through conferences such as this one and through continually raising, measuring, and attending to those kinds of issues. That is a challenge, and that is where we must go from this meeting. I hope that the enthusiasm and interest that has been generated here will carry on so that, 5 years from now, we will be able to point to some changes, to some experimentation, to some improvements in performance that have stemmed from this meeting.

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